

NEW JERSEY HAZMAT EMERGENCY RESPONSE COURSE

LEVEL 1—FIRST RESPONDER

COURSE NUMBER: 06007

AWARENESS

PRESENTED THROUGH:

NEW JERSEY STATE POLICE

SPECIAL OPERATIONS SECTION

HAZARDOUS MATERIALS RESPONSE UNIT



14TH EDITION
4/04

GEOGRAPHIC IDENTIFICATION CODE SCHEME

Incorporated Areas of New Jersey

Arranged Alphabetically by County and Municipality

All codes listed in this Manual will be four (4) digit codes

The first two (2) digits being the County Code, the second (2) being the Municipality Code

EXAMPLES:

Counties:

- 01—Atlantic County
- 02—Bergen County
- 03—Burlington County

Municipalities:

- 01—Absecon City
- 02—Atlantic City City
- 03—Brigantine City

Complete Code

- 0101—Atlantic County, Absecon City
- 0201—Bergen County, Allendale Borough
- 0301—Burlington County, Bass River Township

ATLANTIC COUNTY—01

0101 Absecon City
0102 Atlantic City
0103 Brigantine City
0104 Buena Borough
0105 Buena Vista Twsp.
0106 Corbin City
0107 Egg Harbor City
0108 Egg Harbor Twsp.
0109 Estell Manor City
0110 Folsom Borough
0111 Galloway Twsp.
0112 Hamilton Twsp.
0113 Hammonton Town
0114 Linwood City
0115 Longport Borough
0116 Margate City
0117 Mullica Twsp.
0118 Morthfield City
0119 Pleasantville City
0120 Port Republic City
0121 Somers Point City
0122 Ventnor City
0123 Weymouth Twsp.

BERGEN COUNTY—02

0201 Allendale Borough
0202 Alpine Borough
0203 Bergenfield Borough
0204 Bogota Borough
0205 Carlstadt Borough
0206 Cliffs Park Borough
0207 Closter Borough
0208 Cresskill Borough

0209 Demarest Borough
0210 Dumont Borough
0211 Elmwood Park Borough
0212 East Rutherford Borough
0213 Edgewater Borough
0214 Emerson Borough
0215 Englewood City
0216 Englewood Cliffs Borough
0217 Fair Lawn Borough
0218 Fairview Borough
0219 Fort Lee Borough
0220 Franklin Lakes Borough
0221 Garfield City
0222 Glen Rock Borough
0223 Hackensack City
0224 Harrington Park Borough
0225 Hasbrouck Heights Borough
0226 Haworth Borough
0227 Hillsdale Borough
0228 Hohokus Borough
0229 Leonia Borough
0230 Little Ferry Borough
0231 Lodi Borough
0232 Lyndhurst Twsp.
0233 Mahwah Twsp.
0234 Maywood Borough
0235 Midland Park Borough
0236 Montvale Borough
0237 Moonachie Borough
0238 New Milford Borough
0239 North Arlington Borough
0240 Northvale Borough
0241 Norwood Borough
0242 Oakland Borough

0243 Old Tappan Borough
0244 Oradell Borough
0245 Palisades Park Borough
0246 Paramus Borough
0247 Park Ridge Borough
0248 Ramsey Borough
0249 Ridgefield Borough
0250 Ridgefield Park Village
0251 Ridgewood Village
0252 River Edge Borough
0253 River Vale Twsp.
0254 Rochelle Park Twsp.
0255 Rockleigh Borough
0256 Rutherford Borough
0257 Saddle Brook Twsp.
0258 Saddle River Borough
0259 South Hackensack Twsp.
0260 Teaneck Twsp.
0261 Tenafly Borough
0262 Teterboro Borough
0263 Upper Saddle River Borough
0264 Waldwick Borough
0265 Wallington Borough
0266 Washington Twsp.
0267 Westwood Borough
0268 Woodcliff Lake Borough
0269 Wood-Ridge Borough
0270 Wyckoff Twsp.

BURLINGTON COUNTY—03

0301 Bass River Twsp.
0302 Beverly City
0303 Bordentown City
0304 Bordentown Twsp.

0305 Burlington City
 0306 Burlington Twsp.
 0307 Chesterfield Twsp.
 0308 Cinnaminson Twsp.
 0309 Delanco Twsp.
 0310 Delran Twsp.
 0311 Eastampton Twsp.
 0312 Edgewater Park Twsp.
 0313 Evesham Twsp.
 0314 Fieldsboro Borough
 0315 Florence Twsp.
 0316 Hainesport Twsp.
 0318 Lumberton Twsp.
 0319 Mansfield Twsp.
 0320 Maple Shade Twsp.
 0321 Medford Twsp.
 0322 Medford Lakes Borough
 0323 Moorestown Twsp.
 0324 Mount Holly Twsp.
 0325 Mount Laurel Twsp.
 0326 New Hanover Twsp.
 0327 North Hanover Twsp.
 0328 Palmyra Borough
 0329 Pemberton Borough
 0330 Pemberton Twsp.
 0331 Riverside Twsp.
 0332 Riverton Borough
 0333 Shamong Twsp.
 0334 Southampton Twsp.
 0335 Springfield Twsp.
 0336 Tabernacle Twsp.
 0337 Washington Twsp.
 0338 Westampton Twsp.
 0317 Willingboro Twsp.
 0339 Woodland Borough
 0340 Wrightstown Borough

CAMDEN COUNTY—04

0401 Audubon Borough
 0402 Audubon Park Borough
 0403 Barrington Borough
 0404 Belmawr Borough
 0405 Berlin Borough
 0406 Berlin Twsp.
 0407 Brooklawn Borough
 0408 Camden City
 0412 Cherry Hill Twsp.
 0409 Chesilhurst Borough
 0410 Clementon Borough
 0411 Collingswood Borough
 0413 Gibbsboro Borough
 0414 Gloucester City
 0415 Gloucester Twsp.
 0416 Haddon Twsp.
 0417 Haddonfield Borough
 0418 Haddon Heights Borough
 0419 Hi-Nella Borough
 0420 Laurel Springs Borough
 0421 Lawnside Borough
 0422 Lindenwold Borough
 0423 Magnolia Borough
 0424 Merchantville Borough
 0425 Mount Ephraim Borough
 0426 Oaklyn Borough
 0427 Pennsauken Twsp.
 0428 Pine Hill Borough
 0429 Pine Valley Borough
 0430 Runnemede Borough
 0431 Somerdale Borough

0432 Stratford Borough
 0433 Tavistock Borough
 0434 Voorhees Twsp.
 0435 Waterford Twsp.
 0436 Winslow Twsp.
 0437 Wood-Lynne Borough

CAPE MAY COUNTY—05

0501 Avalon Borough
 0502 Cape May City
 0503 Cape May Point Borough
 0504 Dennis Twsp.
 0505 Lower Twsp.
 0506 Middle Twsp.
 0507 North Wildwood City
 0508 Ocean City
 0509 Sea Isle City
 0510 Stone Harbor Borough
 0511 Upper Twsp.
 0512 West Cape May Borough
 0513 West Wildwood Borough
 0514 Wildwood City
 0515 Wildwood Crest Borough
 0516 Woodbine Borough

CUMBERLAND COUNTY—06

0601 Bridgeton City
 0602 Commercial Twsp.
 0603 Deerfield Twsp.
 0604 Downe Twsp.
 0605 Fairfield Twsp.
 0606 Greenwich Twsp.
 0607 Hopewell Twsp.
 0608 Lawrence Twsp.
 0609 Maurice River Twsp.
 0610 Millville City
 0611 Shiloh Borough
 0612 Stow Creek Twsp.
 0613 Upper Deerfield Twsp.
 0614 Vineland City

ESSEX COUNTY—07

0701 Belleville Town
 0702 Bloomfield Town
 0703 Caldwell Borough
 0705 Cedar Grove Twsp.
 0706 East Orange City
 0707 Essex Fells Borough
 0704 Fairfield Borough
 0708 Glen Ridge Borough
 0709 Irvington Town
 0710 Livingston Twsp.
 0711 Maplewood Twsp.
 0712 Millburn Twsp.
 0713 Montclair Town
 0714 Newark City
 0715 North Caldwell Borough
 0716 Nutley Town
 0717 Orange City
 0718 Roseland Borough
 0719 South Orange Village
 0720 Verona Borough
 0721 West Caldwell Borough
 0722 West Orange Town

GLOUCESTER COUNTY—08

0801 Clayton Borough
 0802 Deptford Twsp.
 0803 East Greenwich Twsp.
 0804 Elk Twsp.

0805 Franklin Twsp.
 0806 Glassboro Borough
 0807 Greenwich Twsp.
 0808 Harrison Twsp.
 0809 Logan Twsp.
 0810 Mantua Twsp.
 0811 Monroe Twsp.
 0812 National Park Borough
 0813 Newfield Borough
 0814 Paulsboro Borough
 0815 Pitman Borough
 0816 South Harrison Twsp.
 0817 Swedesboro Borough
 0818 Washington Twsp.
 0819 Wenonah Borough
 0820 West Deptford Twsp.
 0821 Westville Borough
 0822 Woodbury City
 0823 Woodbury Heights Borough
 0824 Woolwich Twsp.

HUDSON COUNTY—09

0901 Bayonne City
 0902 East Newark Borough
 0903 Guttenberg Town
 0904 Harrison Town
 0905 Hoboken City
 0906 Jersey City City
 0907 Kearny Town
 0908 North Bergen Twsp.
 0909 Secaucus Town
 0910 Union City
 0911 Weehawken Twsp.
 0912 West New York Town

HUNTERDON COUNTY—10

1001 Alexandria Twsp.
 1002 Bethlehem Twsp.
 1003 Bloomsbury Borough
 1004 Califon Borough
 1005 Clinton Town
 1006 Clinton Twsp.
 1007 Delaware Twsp.
 1008 East Amwell Twsp.
 1009 Flemington Borough
 1010 Franklin Twsp.
 1011 Frenchtown Borough
 1012 Glen Gardner Borough
 1013 Hampton Borough
 1014 High Bridge Borough
 1015 Holland Twsp.
 1016 Kingwood Twsp.
 1017 Lambertville City
 1018 Lebanon Borough
 1019 Lebanon Twsp.
 1020 Milford Borough
 1021 Raritan Twsp.
 1022 Readington Twsp.
 1023 Stockton Borough
 1024 Tewksbury Twsp.
 1025 Union Twsp.
 1026 West Amwell Twsp.

MERCER COUNTY—11

1101 East Windsor Twsp.
 1102 Ewing Twsp.
 1103 Hamilton Twsp.
 1104 Hightstown Borough
 1105 Hopewell Borough
 1106 Hopewell Twsp.

1107 Lawrence Twp.
1108 Pennington Borough
1109 Princeton Borough
1110 Princeton Twp.
1111 Trenton City
1112 Washington Twp.
1113 West Windsor Twp.

MIDDLESEX COUNTY—12

1201 Carteret Borough
1202 Cranbury Twp.
1203 Dunellen Borough
1204 East Brunswick Twp.
1205 Edison Twp.
1206 Helmetta Borough
1207 Highland Park Borough
1208 Jamesburg Borough
1210 Metuchen Borough
1211 Middlesex Borough
1212 Milltown Borough
1213 Monroe Twp.
1214 New Brunswick City
1215 North Brunswick Twp.
1209 Old Bridge Twp.
1216 Perth Amboy City
1217 Piscataway Twp.
1218 Plainsboro Twp.
1219 Sayreville Borough
1220 South Amboy City
1221 South Brunswick Twp.
1222 South Plainfield Borough
1223 South River Borough
1224 Spotswood Borough
1225 Woodbridge Twp.

MONMOUTH COUNTY—13

1330 Aberdeen Twp.
1301 Allenhurst Borough
1302 Allentown Borough
1303 Asbury Park City
1305 Atlantic Highlands Borough
1306 Avon-By-The-Sea Borough
1307 Belmar Borough
1308 Bradley Beach Borough
1309 Brielle Borough
1304 Colts Neck Twp.
1310 Deal Borough
1311 Eatontown Borough
1312 Englishtown Borough
1313 Fair Haven Borough
1314 Farmingdale Borough
1315 Freehold Borough
1316 Freehold Twp.
1339 Hazlet Twp.
1317 Highlands Borough
1318 Holmdel Twp.
1319 Howell Twp.
1320 Interlaken Borough
1321 Keansburg Borough
1322 Keyport Borough
1323 Little Silver Borough
1324 Loch Arbour Village
1325 Long Branch City
1326 Manalapan Twp.
1327 Manasquan Borough
1328 Marlboro Twp.
1329 Matawan Borough
1331 Middletown Twp.
1332 Millstone Twp.
1303 Monmouth Beach Borough

1334 Neptune Twp.
1335 Neptune City Borough
1337 Ocean Twp.
1338 Oceanport Borough
1340 Red Bank Borough
1341 Roosevelt Borough
1342 Rumson Borough
1343 Sea Bright Borough
1344 Sea Girt Borough
1345 Shewsbury Borough
1346 Shewsbury Twp.
1347 South Belmar Borough
1348 Spring Lake Borough
1349 Spring Lake Heights Borough
1336 Tinton Falls Borough
1350 Union Beach Borough
1351 Upper Freehold Twp.
1352 Wall Twp.
1353 West Long Branch Borough

MORRIS COUNTY—14

1401 Boonton Town
1402 Boonton Twp.
1403 Butler Borough
1404 Chatham Borough
1405 Chatham Twp.
1406 Chester Borough
1407 Chester Twp.
1408 Denville Twp.
1409 Dover Town
1410 East Hanover Twp.
1411 Florham Park Borough
1412 Hanover Twp.
1413 Harding Twp.
1414 Jefferson Twp.
1415 Kinnelon Borough
1416 Lincoln Park Borough
1417 Madison Borough
1418 Mendham Borough
1419 Mendham Twp.
1420 Mine Hill Twp.
1421 Montville Twp.
1422 Morris Twp.
1423 Morris Plains Borough
1424 Morristown Town
1425 Mountain Lakes Borough
1426 Mount Arlington Borough
1427 Mount Olive Twp.
1428 Netcong Borough
1429 Parsippany-Troy Hills Twp.
1430 Long Hill Twp.
1431 Pequannock Twp.
1432 Randolph Twp.
1433 Riverdale Borough
1434 Rockaway Borough
1435 Rockaway Twp.
1436 Roxbury Twp.
1437 Victory Gardens Borough
1438 Washington Twp.
1439 Wharton Borough

OCEAN COUNTY—15

1501 Barnegat Light Borough
1533 Barnegat Twp.
1502 Bay Head Borough
1503 Beach Haven Borough
1504 Beachwood Borough
1505 Berkeley Twp.
1506 Brick Twp.
1507 Dover Twp.

1508 Eagleswood Twp.
1509 Harvey Cedars Borough
1510 Island Heights Borough
1511 Jackson Twp.
1512 Lacey Twp.
1513 Lakehurst Borough
1514 Lakewood Twp.
1515 Lavallette Borough
1516 Little Egg Harbor Twp.
1517 Long Beach Twp.
1518 Manchester Twp.
1519 Mantoloking Borough
1520 Ocean Twp.
1521 Ocean Gate Borough
1522 Pine Beach Borough
1523 Plumsted Twp.
1524 Point Pleasant Borough
1525 Point Pleasant Beach Borough
1526 Seaside Heights Borough
1527 Seaside Park Borough
1528 Ship Bottom Borough
1529 South Toms River Borough
1530 Stafford Twp.
1531 Surf City Borough
1532 Tuckerton Borough

PASSAIC COUNTY—16

1601 Bloomingdale Borough
1602 Clifton City
1603 Haledon Borough
1604 Hawthorne Borough
1605 Little Falls Twp.
1606 North Haledon Borough
1607 Passaic City
1608 Paterson City
1609 Pompton Lakes Borough
1610 Prospect Park Borough
1611 Ringwood Borough
1612 Totowa Borough
1613 Wanaque Borough
1614 Wayne Twp.
1615 West Milford Twp.
1616 West Paterson Borough

SALEM COUNTY—17

1701 Alloway Twp.
1713 Carney's Point Twp.
1702 Elmer Borough
1703 Elsinboro Twp.
1704 Lower Alloways Creek Twp.
1705 Pennsville Twp.
1706 Mannington Twp.
1707 Oldmans Twp.
1708 Penns Grove Borough
1709 Pilesgrove Twp.
1710 Pittsgrove Twp.
1711 Quinton Twp.
1712 Salem City
1714 Upper Pittsgrove Twp.
1715 Woodstown Borough

SOMERSET COUNTY—18

1801 Bedminster Twp.
1802 Bernards Twp.
1803 Bernardsville Borough
1804 Bound Brook Borough
1805 Branchburg Twp.
1806 Bridgewater Twp.
1807 Far Hills Borough
1808 Franklin Twp.

1809 Green Brook Twsp.
1810 Hillsborough Twsp.
1811 Manville Borough
1812 Millstone Borough
1813 Montgomery Twsp.
1814 North Plainfield Borough
1815 Peapack-Gladstone Borough
1816 Raritan Borough
1817 Rocky Hill Borough
1818 Somerville Borough
1819 South Bound Brook Borough
1820 Warren Twsp.
1821 Watchung Borough

SUSSEX COUNTY—19

1901 Andover Borough
1902 Andover Twsp.
1903 Branchville Borough
1904 Byram Twsp.
1905 Frankford Twsp.
1906 Franklin Borough
1907 Fredon Twsp.
1908 Green Twsp.
1909 Hamburg Borough
1910 Hampton Twsp.
1911 Hardyston Twsp.
1912 Hopatcong Borough
1913 Lafayette Twsp.
1914 Montague Twsp.

1915 Newton Town
1916 Ogdensburg Borough
1917 Sandyston Twsp.
1918 Sparta Twsp.
1919 Stanhope Borough
1920 Stillwater Twsp.
1921 Sussex Borough
1922 Vernon Twsp.
1923 Walpack Twsp.
1924 Wantage Twsp.

UNION COUNTY—20

2001 Berkeley Heights Twsp.
2002 Clark Twsp.
2003 Cranford Twsp.
2004 Elizabeth City
2005 Fanwood Borough
2006 Garwood Borough
2007 Hillside Twsp.
2008 Kenilworth Borough
2009 Linden City
2010 Mountainside Borough
2011 New Providence Borough
2012 Plainfield City
2013 Rahway City
2014 Roselle Borough
2015 Roselle Park Borough
2016 Scotch Plains Twsp.
2017 Springfield Twsp.

2018 Summit City
2019 Union Twsp.
2020 Westfield Town
2021 Winfield Twsp.

WARREN COUNTY—21

2101 Allamuchy Twsp.
2102 Alpha Borough
2103 Belvidere Town
2104 Blairstown Twsp.
2105 Franklin Twsp.
2106 Frelinghuysen Twsp.
2107 Greenwich Twsp.
2108 Hackettstown Town
2109 Hardwick Twsp.
2110 Harmony Twsp.
2111 Hope Twsp.
2112 Independence Twsp.
2113 Knowlton Twsp.
2114 Liberty Twsp.
2115 Lopatcong Twsp.
2116 Mansfield Twsp.
2117 Oxford Twsp.
2118 Pahaquarry Twsp.
2119 Phillipsburg Town
2120 Pohatcong Twsp.
2121 Washington Borough
2122 Washington Twsp.
2123 White Twsp.

NOTES

Although the information set forth in this program is presented in good faith and believed to be correct, persons or agencies using this information must make their own determination as to its suitability for their purposes. In no event are the participating organizations and the developing Technical committee responsible for damages of any nature resulting from the use of this information.

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MEMBER
NEW JERSEY • NEW YORK



**HAZARDOUS
MATERIALS
WORKER
TRAINING
CENTER**

Providing Safety and Health Training
for: Emergency Response Employees,
Superfund Site Employees, and
RCRA TSD Site Employees.

HAZARDOUS MATERIALS AWARENESS INTRODUCTION

You are at the beginning of a training system for hazardous materials emergency responders. The purpose of this “Awareness” course is just that, to give you an awareness of the subject. You are taking this course because as part of your normal job duties it is possible or probable that you may come in contact with a hazardous material release.

All of the information in this course follows a **DEFENSIVE** response, that is, identifying that a problem exists, gathering basic information on the nature of the incident, and reporting back what you have found. With this, it is important to realize that if you are “first on the scene” of an incident, your actions are the most critical in initiating a proper emergency response.

As you are at the beginning of a complex process, it is important for you to understand that all emergency procedures should be detailed in your jurisdiction’s Emergency Operations Plan (EOP). Every county and municipality in New Jersey is required to have a fully comprehensive EOP as per Public Law 1989, Chapter 222, the Emergency Management Act. You should be familiar with all of the response roles outlined in your EOP’s basic plan and 15 functional annexes.

Your jurisdiction’s plan should also be an accurate representation of your method of operation. **If it isn’t, do something about it!** Get in contact with your emergency management coordinator and sit down and discuss it. Offer to assist your Local Emergency Planning Committee in developing or rewriting the SOPs.

QUIZ #1

1. A Hazardous Material Incident is an accident where Hazardous Materials are present.
 - a. true
 - b. false
2. In NJ, the official designated notification point for Hazardous Material incidents is:
 - a. NJSP Headquarters (609) 882-2000
 - b. NJDEP Emergency Action Line 1-877-WARNDEP
 - c. Emergency 911
 - d. N.J. Department of Health
3. According to 29 CFR 1910.120, a Haz Mat Awareness course is mandatory for all emergency responders.
 - a. true
 - b. false
 - c. partially
4. What is NOT one of the six clues for detecting the presence of Hazardous Material?
 - a. placards
 - b. shipping papers or other documents
 - c. the wind direction
 - d. the occupancy or location
5. When is the ICS required?
 - a. only at spills involving more than 5000 gallons
 - b. only at incidents with the potential for mass evacuation
 - c. only at incidents involving fires and BLEVES
 - d. only when evacuation of victims is occurring
 - e. all of the above
6. Degradation means?
 - a. damage to public property
 - b. the loss of beneficial physical properties of a material
 - c. a chemical reaction with accompanying release of gas
 - d. rapid oxidation with the evolution of heat and light
7. A tank truck carrying gasoline will, when viewed from the rear, look:
 - a. round
 - b. rectangular
 - c. square
 - d. oval
8. The Initial Isolation/Protective Action Distances table is:
 - a. found in the USDOT Guidebook
 - b. can be part of the shipping papers
 - c. chemical specific
 - d. all of the above
9. The Decontamination Line at a Haz Mat Incident should be established (set-up)
 - a. adjacent to the command post
 - b. in the contaminated area, or Hot Zone
 - c. in the contamination reduction corridor or the warm zone
 - d. in the uncontaminated/cold zone
10. Notification to the NJDEP Emergency Action Line will also ensure notification to:
 - a. the local municipality
 - b. the USEPA/USCG, when necessary
 - c. the NJSP
 - d. all of the above

TABLE OF CONTENTS

LEVEL 1

FIRST RESPONDER AWARENESS

This course is separated into seven modules of instruction.

GOAL:

Participants will be able to:

- List and/or describe the information required to demonstrate the competencies specified for the First Responder (Awareness Trained) by OSHA and PEOSHA.

FIRST RESPONDER—AWARENESS (LEVEL 1)

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MODULE 1 INTRODUCTION

Outline

- Module Objectives
- The NJ Haz Mat Emergency Response Training Program
 - Five Levels of Training
 - OSHA/PEOSHA Regulations

MODULE 1 OBJECTIVES

Introduction

The students will be able to:

1. List the five levels of training.
2. List and describe two sources of required course content.
3. State how often OSHA/PEOSHA requires refresher training.

Program Outline

The New Jersey State Hazardous Materials Training Program is a comprehensive system of training modules designed to allow the students to achieve whatever level of training that would be personally appropriate. Established levels start with First Responder Awareness and progress up to On Scene Incident Commander. Annual Refresher training or a documented demonstration of competence is required. Periodic updates and revisions will change the training criteria. These changes will be incorporated into the process so that all participants in the program will have the same training at each level.

		Required Content Source
Level 1	1st Responder Awareness	NJSA 34:5A-1 NJSA 13:1K-33 OSHA & NFPA
Level 2	1st Responder Operational	OSHA & NFPA NJSA 34:5A-1
	Emerg. Medical Operations	NFPA 473
Level 3	Haz Mat Technician	NJSA 34:5A-1 NJSA 13:1K-33 OSHA & NFPA 472
	Emerg. Medical Advanced	NFPA 473
Level 4	HM Specialist/ Specialty	NJSA 34:5A-1 NJSA 13:1K-33 OSHA & NFPA
Level 5	One Scene Incident Commander	NJSA 34:5A-1 NJSA 13:1K-33 OSHA & NFPA

**FRANKS BILL—NJSA 13:1K-33
PROGRAM DESIGN**

The Hazardous Materials Discharge Training Program shall be designed to enable its participants to competently:

- a. Verify if a hazardous material discharge has occurred.
- b. Identify the type and amount of the hazardous material.
- c. Ensure timely notification of the discharge incident to the appropriate municipal, county and state officials.
- d. Know the responsibilities of municipal, county and state organizations in dealing with hazardous materials.
- e. Know the appropriate precautions to safeguard the public health and safety until specialized hazardous material response personnel arrive.
- f. Communicate the required notification information to all other municipal representatives who may potentially receive the initial call regarding a hazardous material discharge.

**FROM OSHA'S FINAL RULE (3/6/89)
29 CFR PART 1910**

**(q) EMERGENCY RESPONSE TO HAZARDOUS SUBSTANCE
RELEASES**

This paragraph covers employers whose employees are engaged in emergency response no matter where it occurs.

(6) Training. Training shall be based on the duties and function to be performed by each responder of an emergency response organization. The skill and knowledge levels required for all new responders, those hired after the effective date of this standard, shall be conveyed to them through training before they are permitted to take part in actual emergency operations on an incident. Employees who participate, or are expected to participate, in emergency response, shall be given training in accordance with the following paragraphs:

(i) **First responder awareness level.** First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas:

- (A) An understanding of what hazardous materials (substances) are, and the risks associated with them in an incident.
- (B) An understanding of the potential outcomes associated with an emergency created when hazardous materials (substances) are present.
- (C) The ability to recognize the presence of hazardous materials (substances) in an emergency.
- (D) The ability to identify the hazardous materials (substances), if possible.
- (E) An understanding of the role of the first responder awareness individual in the employer's emergency response plan including site security and control and the U.S. Department of Transportation's Emergency Response Guidebook.
- (F) The ability to realize the need for additional resources, and to make appropriate notifications to the communication center.

(ii) **First responder operations level.** First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First responders at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level and the employer shall so certify:

- (A) Knowledge of the basic hazard and risk assessment techniques.
- (B) Know how to select and use proper personal protective equipment provided to the first responder operational level.
- (C) An understanding of basic hazardous materials terms.
- (D) Know how to perform basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit.
- (E) Know how to implement basic decontamination procedures.
- (F) An understanding of the relevant standard operating procedures and termination procedures.

(iii) **Hazardous materials technician.** Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch or otherwise stop the release of a hazardous substance. Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer shall so certify:

- (A) Know how to implement the employer's emergency response plan.
- (B) Know the classification, identification and verification of known and unknown materials by using field survey instruments and equipment.
- (C) Be able to function within an assigned role in the Incident Command System.
- (D) Know how to select and use proper specialized chemical personal protective equipment provided to the hazardous materials technician.
- (E) Understand hazard and risk assessment techniques.
- (F) Be able to perform advance control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with the unit.
- (G) Understand and implement decontamination procedures.
- (H) Understand termination procedures.
- (I) Understand basic chemical and toxicological terminology and behavior.

(iv) **Hazardous materials specialist.** Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician, however, those duties require a more directed or specific knowledge of various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with Federal, state, local and other government authorities in regards to site activities. Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in the following areas and the employer shall so certify:

- (A) Know how to implement the local emergency response plan.
- (B) Understand classification, identification and verification of known and unknown materials by using advanced survey instruments and equipment.
- (C) Know of the state emergency response plan.
- (D) Be able to select and use proper specialized chemical personal protective equipment provided to the hazardous materials specialist.
- (E) Understand in-depth hazard and risk techniques.
- (F) Be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available.
- (G) Be able to determine and implement decontamination procedures.
- (H) Have the ability to develop a site safety and control plan.
- (I) Understand chemical, radiological and toxicological terminology and behavior.

(v) **On scene incident commander.** Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, shall receive at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer shall so certify:

- (A) Know and be able to implement the employer's incident command system.
- (B) Know how to implement the employer's emergency response plan.

- (C) Know and understand the hazards and risks associated with employees working in chemical protective clothing.
- (D) Know how to implement the local emergency response plan.
- (E) Know of the state emergency response plan and of the Federal Regional Response Team.
- (F) Know and understand the importance of decontamination procedures.

(7) **Trainers.** Trainers who teach any of the above training subjects shall have satisfactorily completed a training course for teaching the subjects they are expected to teach, such as the courses offered by the U.S. Fire Academy, or they shall have the training and/or academic credentials and instructional experience necessary to demonstrate competent instructional skills and a good command of the subject matter of the courses they are to teach.

(8) **Refresher training.** (i) Those employees who are trained in accordance with paragraph (q)(6) of this section shall receive annual refresher training of sufficient content and duration to maintain their competencies, or shall demonstrate competency in those areas at least yearly.

(ii) A statement shall be made of the training or competency, and if a statement of competency is made, the employer shall keep a record of the methodology used to demonstrate competency.

MODULE 2

HEALTH AND SAFETY

Outline

- Module objectives
- Definitions
 - Hazardous Material (Dangerous Goods)
 - Hazardous Material Incidents
- How Hazardous Materials are harmful to people
 - How to read a DOH HSFS or an MSDS
 - Finding physical properties of a substance
 - Finding the specific hazards associated with a substance
 - Physical properties of hazardous materials
 - Radioactivity
- Confined space regulations
- Limitations of ordinary clothing
- Self-care precautions for victim assistance

MODULE 2

OBJECTIVES

HEALTH AND SAFETY

The students will be able to:

1. differentiate between a haz mat incident and other incidents, given various scenarios.
2. identify the four routes by which hazardous materials can enter the body.
3. classify chemical exposure as acute or chronic, given various scenarios.
4. demonstrate familiarity with the following terms:
 - pH
 - specific gravity
 - vapor density
5. describe how time, distance and shielding can affect exposure to radioactive sources.
6. define a confined space and describe several hazards associated with it.
7. list the three forms of chemical intrusion that can occur to both ordinary and protective clothing.
8. identify the conditions that must be present before rescue can be considered an option at a Haz Mat incident.

DEFINITIONS

HAZARDOUS MATERIAL

A substance or material, including a hazardous substance that is capable of posing an unreasonable risk to health, safety, and property when transported in commerce.

U.S. Department of Transportation

HAZARDOUS SUBSTANCE

Any substance designated under the Clean Water Act and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) as posing a threat to waterways and the environment when released.

Environmental Protection Agency

HAZARDOUS WASTE

Hazardous waste means any waste or combination of wastes which pose a substantial present or potential hazard to human health or living organisms because such wastes are nondegradable or persistent in nature or because they can biologically magnify or because they can be lethal or because they may otherwise cause or tend to cause detrimental cumulative effects.

Code of Federal Regulations
Title 40. Part 261

Environmental Protection Agency

DANGEROUS GOODS

Canada

HAZARDOUS CHEMICALS

Any chemical which presents a physical hazard or a health hazard to employees.

OSHA

EXTREMELY HAZARDOUS SUBSTANCES

Chemicals determined by the U.S.E.P.A. to be extremely hazardous to a community during an emergency spill or release as a result of their toxicities and physical/chemical properties.

EPA/Chemical Emergency
Preparedness

HAZARDOUS MATERIALS (SUBSTANCES/WASTES)

A hazardous material is any substance that causes or may cause adverse effects on the health or safety of employees, the general public, or the environment; any biological agent and other disease-causing agent, or a waste or combination of wastes.

NFPA 472

HAZARDOUS MATERIALS INCIDENT

The release or potential release of a hazardous material into the environment.

NFPA 472

INCIDENT COMMANDER

The person responsible for all decisions relating to the management of the incident. The Incident Commander is in charge of the incident site. This is equivalent to the on-scene incident commander as defined by 29 CFR 1910.120.

NFPA 472

HAZARDOUS SUBSTANCE

Any substance to which exposure may result in adverse effects on the health or safety of employees. Would include any substance defined under section 101 (14) of CERCLA, any biological agent and other disease-causing agent as defined in section 101 (33) of CERCLA, any substance listed in the U.S. D.O.T. as hazardous materials under 49 CFR 172.101, and any hazardous waste as defined in 40 CFR 261.3 or 49 CFR 171.8. OSHA 29 CFR 1910.120.

HOW HAZARDOUS MATERIALS ARE HARMFUL TO PEOPLE

In order to effectively deal with an incident, first responders must be aware of certain properties of hazardous materials and how they will behave in the environment. At any incident, you will, probably, be using the DOT Emergency Response Guide as your first source of information. Next, you should obtain copies of the information that must be on file at fixed facilities and local fire and police departments.

These sources will give you a lot of information to plan your actions. Some of the information you should be looking for are toxicity, routes of exposure, effects of exposure, symptoms of exposure and physical properties of the material which may affect its behavior at the site.

EXPOSURE

The ERG has already told you whether the material's major hazard is its flammability, reactivity or toxicity. Other sources will go on to tell you just **how** toxic the material is. That is, will it take five drops or five gallons to affect you. They will also tell you the nature of the toxic exposure problem that you are facing. Is the material a carcinogen, mutagen or teratogen? **Carcinogens** are those substances that cause cancer. **Mutagens** are materials that cause genetic changes in the cells of your gonads that can be passed on to any children you have after the exposure. Mutations may also be precursors of cancer. **Teratogens** are substances that cause damage to a developing fetus (unborn child) but do not affect any future pregnancies.

Other sources will also help you to determine what effects acute and chronic exposures to the material will have on you. **Acute exposure** is a single contact with a material. **Chronic exposure** is repetitive exposure over a relatively long period of time.

Personnel exposure may occur through **four routes of exposure**:

Inhalation: Hazardous vapors or gases that get in your lungs are, almost immediately, introduced into the blood stream and circulated through your body. Avoid inhaling hazardous materials by staying upwind of an incident and a prudent distance away.

Ingestion: Materials can get into the mouth by hand-to-mouth contact. Inhaled particles can be coughed up from the lungs and then swallowed.

Absorption: Many chemicals can enter the body by being absorbed through healthy, unbroken skin. Avoid getting hazardous materials on your skin or in your eyes.

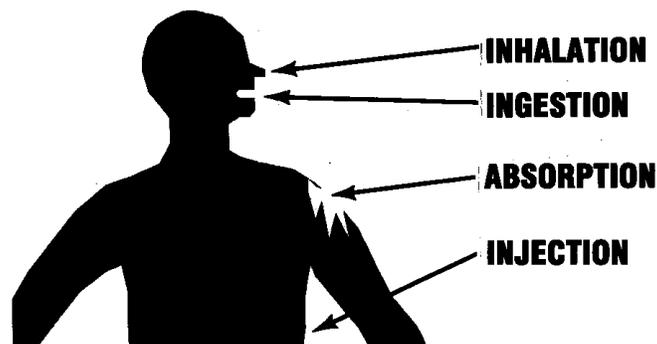
Injection: Chemicals may penetrate the skin if you step on a contaminated nail or cut yourself on broken glass or sharp metal that is contaminated.

Permissible Exposure Limit (PEL): Maximum single exposure amount permitted under OSHA regulations for workers. This is a legal standard and should never be exceeded even briefly and even if the TLV-TWA is not exceeded.

Threshold Limit Value (TLV): Expresses the concentrations of airborne substances to which a healthy adult man can be exposed in normal work conditions on a repeated basis without suffering ill health effects. Generally includes an 8-hour day or 40-hour work week.

Time Weighted Average (TWA): Associated with TLVs as the averaging method used to determine work place exposures that are permissible. Usually the concentrations will be expressed as TLV-TWA.

ROUTES OF EXPOSURE



Short Term Exposure Limit (STEL): Maximum permissible TWA exposure according to OSHA to which a person may be exposed for a maximum 15 minute period for no more than 4 times in a day regardless of the TLV-TWA exposure to which the individual may otherwise be committed.

Immediately Dangerous to Life and Health (IDLH): Identifies a concentration, either in PPB, PPM or percent in air, which has been indicated as being dangerous to people and likely to impair their ability to escape a harmful area in any exposure within 30 minutes.

For the First Responder, references to TWA-TLV, PEL, STEL, IDLH, etc., should mainly serve as warnings that a material has the potential to be harmful.

EFFECTS

You will want to know if the effects of exposure are immediately apparent or are they delayed. **Immediate effects** become apparent as soon as you are exposed to a substance. **Delayed effects** become apparent as much as several years after your exposure.

Local effects occur at the site of exposure (e.g. if you spill lye on your hand, your hand will be burned) **systemic effects** occur at an organ of the body that was not directly exposed (e.g. if you inhale benzene, your lungs have been directly exposed but your kidneys or bladder may develop the problem; cancer).

PHYSICAL PROPERTIES

Information on the physical properties of a substance will give you some idea as to how the substance will act during an incident. The **specific gravity** (SG) of a material will tell you whether the material floats or sinks in water: a specific gravity of greater than 1 indicates that the substance sinks; numbers less than 1 indicate that the substance floats. If you can tell responding units if the substance sinks or floats in water, it will help them to determine their containment strategy.

The **vapor density** (VD) of a gas or vapor will tell you whether the material will drop or rise in the air. It is the relative density of a vapor compared to air. A gas or vapor with a VD of less than 1 is "lighter than air" and will rise. A material with a vapor density greater than 1 will drop and collect in low-lying areas and pockets. Again, whether a material sinks or rises will affect the incident control strategy.

GASES LIGHTER THAN AIR

Hydrogen	Methane
Ammonia	Natural Gas
Helium	Carbon Monoxide
Acetylene	Ethylene

Vapor pressure will tell you how readily a solid or liquid mixes with air at its surface. High VPs (approaching 760 millimeters of mercury [Hg]) indicate a volatile substance and suggests that there are high concentrations in the air at an incident. Vapor pressures above 760mm Hg indicate a material that is normally a gas. Vapor pressure increases as a substance is heated.

The **explosive limits** (or flammable limits) are the highest and lowest concentrations of a substance in the air that can explode or burn. The upper explosive limit (**UEL**) is the richest mixture of a substance that can explode (not enough oxygen) while the lower explosive limit (**LEL**) is the most lean (not enough of the substance). The LEL is measured with a Combustible Gas Indicator (CGI). An area must be evacuated if the CGI reads 10% of the LEL. (10% taken from PEOSHA and U.S. Coast Guard).

Examples of Explosive Limits:

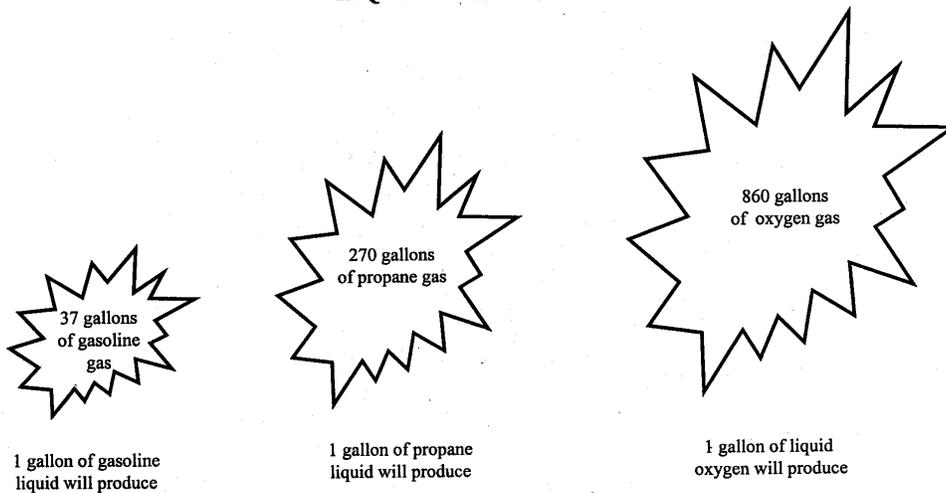
Product	LEL	UEL
Propane	2.2%	9.5%
Gasoline	1.4%	7.4%
Hydrogen	4.0%	75%
Acetylene*	2.5%	100%
*Note how flammable Acetylene is compared to other hazardous materials.		

Another risk associated hazardous materials is the **liquid to large vapor or gas ratio** and the resulting vapor clouds. This ratio, often referred to as the expansion ratio, compares the amount of gas produced when a given volume of liquid vaporizes. The liquid/gas ratio is not hazardous simply because a lot of gas is produced, but because the gas and its vapor cloud can be dangerous. These gases can be flammable, toxic, corrosive and/or extremely cold (cryogenic).

The **water solubility** of a material is the degree to which it dissolves in water. Materials that readily dissolve in any concentration are described as **“miscible.”** Miscible materials are difficult to contain once they reach a body of water. If a substance is miscible in water, all the runoff water from a hazardous materials incident may have to be diked and retained before it reaches the local body of water for decontamination or proper disposal.

Corrosive substances are acids or bases. They are substances that burn or otherwise damage body tissue, metals, plastics or other materials as a result of contact. The **pH** of a substance will give you some idea of how strong an acid or base a substance is. A **weak acid** has a pH of about 6; a **strong acid** has a pH of 1 to 3. A **weak base** has a pH of about 8; a **strong base** has a pH of 12 to 14. Substances with a pH near 7 are considered neutral; neither acid nor base. The pH scale is logarithmic. That is, each number designates ten-times greater acidic or basic properties than the one before it. A substance with pH 8 is 10 times more basic than one with a pH of 7; a pH of 9 is 10 times more basic than a pH of 8 (and 100 times more than pH 7); and so forth.

LIQUID / VAPOR RATIO



pH OF SOME COMMON SUBSTANCES

	14		
lye			
	13		
household ammonia	12	Strong Bases	BASIC
	11		
lime water			
	10		
borax			
	9		
baking soda			
	8	Weak Bases	
blood			NEUTRAL
milk	7		
rain	6	Weak Acids	
black coffee	5		
tomatoes	4		
soda			ACIDIC
	3		
lemon juice	2	Strong Acids	
gastric fluid	1		
	0		

RADIATION

Radioactive exposure may come from exposure to particles or rays from a **radioactive source**. Particles and rays are, generally, emitted in three forms during radioactive decay; **alpha** and **beta particles**, or **gamma rays**.

Alpha particles are, relatively, massive and travel only three or four inches from a radioactive source. Very little shielding is required to stop alpha particles; several sheets of paper are enough. The danger from alpha particles is that they can adhere to dust particles and be inhaled. Inhaled particles may stay in your lungs and increase your risk of cancer.

Beta particles are more energetic and less massive than alpha particles. They can be either electrons, carrying a negative electrical charge, or positrons, carrying a positive charge. Beta particles can travel up to one hundred feet from their source and can penetrate firefighter's turnout gear. They can be stopped by one millimeter of aluminum.

Gamma rays are not particles but are a form of pure energy. They can travel great distances from their source. Gamma rays are attenuated (not completely stopped) by massive shielding; three inches of lead.

Time exposed, **distance** from a radioactive source, and **shielding** used all combine to limit the amount of radiation you are exposed to at a radioactive incident. It should be obvious that the shorter the time you are at a site, the less radiation your body can intercept. In this way, exposure to individuals can be controlled by work schedules.

Your exposure to radioactive particles and rays (measured in roentgens) changes with your **distance** from a radioactive source. The rate that radiation drops according to distance from its source is described by the "inverse square law." The "law" is a formula that describes how particles or rays spread out as they travel from their source. So, the farther you are from a source, the less exposure you will receive per unit of time.

Shielding is another way to limit exposure to radiation. Shielding is any material or equipment designed to limit the penetration of radioactive particles or energy. Alpha particles have a low penetration potential and workers require very little shielding to protect them from alpha particles. Beta particles are more penetrative and require thicker, denser shielding to protect workers. Gamma rays are highly penetrative and require heavy lead shielding to protect workers.

Thinking about these chemical characteristics and the way that environmental factors can alter an incident seems daunting but remember, the nearly 13,000 incidents reported in New Jersey in 1991 involved relatively few chemicals. 60% (app. 7,800) of the reported hazmat incidents involved petroleum products. Most of the remaining 40% (app. 5,000) involved only 30 different chemicals. Just be aware of (and especially careful with) that group of (less than 1,000) incidents labeled “unknown.”

CONFINED SPACE RECOGNITION

A confined space is an area which, by design, has limited openings for entry and exit, unfavorable natural ventilation, could contain a hazardous atmosphere, and is not intended for continuous employee occupancy (NJPEOSHA; NJAC 12:100-9).

PEOSHA goes on to define “entry” into a confined space as any action on your part that will expose your respiratory system to the hazards of that space. Basically this refers to any action that results in any part of your face crossing the plane of the opening into the confined space. . . . But remember, even by standing near the opening of a confined space may expose you to vapors and gases that are venting off or being forced out of the space.

OSHA (29 CFR 1910.146) defines a confined space as an enclosed space which:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work
2. Has limited or restricted routes of entry or exit
3. Is not designed for continuous employee occupancy
4. The confined space becomes a “permit required confined space” if it also has the potential for one or more of the following characteristics:
 - a. A hazardous atmosphere
 - b. An engulfment hazard
 - c. An internal configuration that could trap or asphyxiate an entrant (such as inwardly converging walls, a downward sloping floor that tapers to a smaller cross-section)
 - d. Any other recognized serious safety or health hazard

Examples of confined spaces include but are not limited to pits, pumping stations, pipelines, boilers, cupolas, degreasers, furnaces, septic tanks, reaction and pressures vessels, sewage digesters, sewers, silos, storage tanks, ship holds, utility vaults, vats, trenches and excavations.

NEVER TRUST YOUR SENSES TO DETERMINE IF THE AIR IN A CONFINED SPACE IS SAFE. YOU CANNOT SEE OR SMELL MANY TOXIC GASES OR VAPORS NOR CAN YOU DETERMINE THE LEVEL OF OXYGEN PRESENT.

No matter which definition you work from, you are likely to encounter one or more of the following hazards in confined space work:

1. Limited access that hinders emergency rescue
2. Existing or potential hazardous atmospheres; either inherent in the space or introduced by the work being performed or adjacent work
3. Poisoning from toxic gases and vapors
4. Asphyxiation caused by displacement of oxygen
5. Energy sources controlled at some point outside the space (steam, electricity, etc.)
6. Explosion from the ignition of explosive or flammable materials
7. Mechanical equipment controlled from an outside location
8. Small internal dimensions that put workers into close proximity to hazards
9. Lack of communication between workers inside the space and those outside
10. Possibility of tools or material falling into the space
11. Unstable walls (as in a pit or trench)
12. Asphyxiation caused by engulfment
13. Heat from combustion or oxidation inside the space or energy from an outside source
14. Biologics (rodents, spiders, snakes, stinging insects)
15. Insecure or structurally unsound footings (rusty ladder rungs, slippery stirrups, etc.)
16. Poor lighting/visibility
17. Unknown hazards

Most of the chemical related hazards arise from five factors:

1. Residues of previously stored products
2. Unexpected leaks or spills into or from containers within the confined space
3. Unexpected chemical reactions within the space
4. By-products of reactions within the space
5. Poor venting of inerting gases

In order to assure your safety, you must recognize and not enter confined spaces until you have had training in confined space hazard recognition, confined space entry and your group has a written SOP for such entries. Even with training, remember that you will NEVER enter a confined space to attempt a rescue without proper backup, a harness and a safety or retrieval line.

PROTECTIVE CLOTHING VS. ORDINARY CLOTHING

To better understand the limitations of ordinary clothing or work uniforms in protecting you from hazardous materials we will look at the limitations of clothing designed for chemical protection.

Since response organizations encounter a large variety of chemicals, their protective clothing must be constructed of highly resistant materials.

The materials in current use have limited resistance to a broad range of commonly spilled chemical solvents. No one suit material will resist attack by all chemicals. Rubber and polymeric materials are all permeable to some degree. For some chemicals, there is no acceptable garment available to provide adequate protection for the wearer. Consequently, chemical response teams must rely on an inventory of suits constructed of different materials to provide adequate personnel protection.

A number of considerations are used in selecting appropriate materials. Response organizations base their selection decisions on material-chemical resistance data. The three forms of chemical intrusion into a suit, **degradation**, **penetration** and **permeation** will be described later. Selection criteria also includes the physical properties of a material as indicators of both durability and comfort. The techniques which can be used to fabricate suit seams, and other material interfaces, are also a consideration. The secondary materials of the visor/faceshield, gloves, boots, gaskets, and external fittings are equally important because the integrity of encapsulating suits is only as good as the weakest materials.

Several standards exist or are being established to specify test methods to measure suit material characteristics and performance.

Note: Do not under any circumstances use Personal Protective Equipment without having the proper **Knowledge** and **Training**.

THE THREE FORMS OF CHEMICAL INTRUSION

Degradation is the loss in beneficial physical properties caused by exposing gloves, protective clothing, and other elastomeric samples to various liquid chemicals. Samples may get harder, stiffer, and brittle, or they may get softer, weaker, and swell to several times their original dimensions. The traditional method of testing rubber and plastic for chemical resistance has been a degradation test.

Penetration is the flow of a hazardous chemical through zippers, stitched seams, and pores or other imperfections in clothing material. Gloves which can be readily penetrated by hazardous substances are generally intended only to prevent cuts, abrasions, thermal burns and other similar physical (rather than chemical) hazards.

Permeation is the process by which a hazardous chemical moves through a protective clothing materials on a molecular level. No pinholes or other flaws are involved in allowing the chemical to reach the other side of the material. The process consists of:

- a. The absorption of molecules of the liquid into the contacted (outside) surface of a material;
- b. The diffusion of the absorbed molecules through the material; and
- c. The desorption of the molecules from the opposite (inside) surface of the material.

EPA/COAST GUARD DESIGNATED LEVELS OF PROTECTION

Clothing which is specifically designed for hazardous materials incidents, and for use with specific types of chemicals, falls into four categories: Level A, Level B, Level C, and Level D. The predominant physical, chemical, and toxic properties of a chemical, or chemicals, involved in a hazardous materials incident will dictate the specific type of chemical protection required. The guidelines for the use of these various levels of protection are as follows:

Level A: MAXIMUM PROTECTION

Should be worn when the highest level of respiratory, skin, and eye protection is required.

Level A Conditions:

- Unknown gas concentrations.
- Known extremely toxic or corrosive gases.
- Possible or expected skin exposure to toxic or corrosive liquids, gases or solids.
- IDLH Atmospheres.

Level A Configuration:

- Fully-encapsulating chemical resistant suit completely encloses user and SCBA.



Level B: HIGH RESPIRATORY PROTECTION

Should be worn when the highest level of respiratory protection is needed but a lesser level of skin protection is required. (SPLASH PROTECTION)

Level B Conditions:

- Known contaminant levels below IDLH concentrations.
- Atmosphere with less than 19.5% oxygen.
- Chemical concentrations which are above the TLV level.

Level B Configuration:

- Chemical resistant clothing including boots and gloves, that generally do not fully enclose user and SCBA.



Level C: LIMITED RESPIRATORY PROTECTION

Should be worn when the criteria for using air-purifying/respirators has been met.

Level C Conditions:

- Greater than 19.5% oxygen.
- Contaminant level below IDLH and above TLV.
- Skin contact hazards are minimal or do not exist.

Level C Configuration:

- Level B and Level C differ only in type of respiratory protection required. The chemical protective clothing requirements are the same.



Level D: MINIMUM PROTECTION

Should be worn only as a work uniform and not on any site with a respiratory or skin hazard.

Level D Conditions:

- No possibility of respiratory exposure.
- No possibility of skin exposure.
- No contaminant levels below TWA.

Level D Configuration:

- Standard Work Uniform.



NFPA CHEMICAL PROTECTIVE CLOTHING STANDARDS

The National Fire Protection Association has completed the development and publishing of three (3) national standards regarding chemical protective clothing for use during hazardous chemical emergencies.

NFPA 1991 Standard:

This standard is for specifying the design and performance criteria for a chemical protective garment that is intended to be used in a gaseous or vapor atmosphere of chemicals. This garment must be totally encapsulating.

NFPA 1992 Standard:

This standard is for the design and manufacture of a garment that did not have to meet the rigid permeation requirements found in the 1991 standard. In the 1992 standard, Standard on Liquid Splash-protective Suits for Hazardous Chemical Emergencies, the emphasis was basically on two things:

1. single to multi-piece garments
2. suitable chemical test that reflected resistance to liquids

Its use is for liquid splash environments only.

NFPA 1993 Standard:

This standard deals with support functions and is described as hazardous chemical operations involving controlled chemical uses or exposures in non-flammable atmospheres with minimum threats to loss of life, personnel injury, or damage to property or to the environment. Functions include, but are not limited to, decontamination, remedial cleanup, and training.

NFPA 1994–2001 Edition:**Standard on Protective Ensembles for
Chemical/Biological Terrorism Incidents**

NFPA 1994 is a new standard, released in August 2001, that sets performance requirements for protective clothing used at chemical/biological terrorism incidents. All NFPA 1994 ensembles, which must include garment, gloves and footwear, are intended for one-time use. NFPA 1994 defines three classes of ensembles to meet the perceived threat at the emergency scene:

Class 1 Ensembles Intended for use in the worst-case circumstances where the substance involved creates an immediate threat, is unidentified and of unknown concentration. These ensembles offer the highest level of protection by:

- Providing gas-tight integrity.
- Using materials (garment, visor, gloves, footwear and seams) that provide the highest level of permeation resistance against chemical and biological agents as well as high-threat industrial chemical liquids and gases.
- Showing very low levels for penetration of surrogate gas.
- Demonstrating relatively high levels of durability to abrasion, tearing, punctures and cuts.
- Including all the personal protective equipment (PPE) elements such as visors, gloves, footwear and seams.

Class 2 Ensembles Intended for circumstances where the agent or threat has generally been identified and the actual release has subsided. These ensembles offer an intermediate level of protection by:

- Showing no more than 2.0% leakage of surrogate gas.
- Passing a “shower” test that shows the suit will not allow penetration of liquid when sprayed from several directions.
- Using materials (garment, visor, gloves, footwear and seams) that demonstrate permeation resistance to chemical agents and liquid/gaseous industrial chemicals at lower concentrations than in Class 1.
- Demonstrating durability to abrasion, tearing, punctures and cuts.

Class 3 Ensembles Intended for use long after the release has occurred or in the peripheral zone of the release scene. These ensembles offer the lowest level of protection by:

- Passing a short-duration “shower” test to show they are liquid-tight (they are not gas-tight nor required to show resistance to leakage of vapor or gas from the outside environment).
- Providing permeation resistance to diluted liquids where the liquid is permitted to evaporate during the test.

Note: OSHA Final Rule 29 CFR Part 1910 (q)(3)(iv)

- (iv) Employees engaged in emergency response and exposed to hazardous substances presenting an inhalation hazard or potential inhalation hazard shall wear positive pressure self-contained breathing apparatus while engaged in emergency response, until such time that the individual in charge of the ICS determines through the use of air monitoring that a decreased level of respiratory protection will not result in hazardous exposures to employees.

The level of protection necessary for the hazardous materials responder at an incident should be based on the following factors which must be critically assessed:

- A. The type and measured concentration of the chemical substance in the ambient atmosphere and its toxicity.
- B. The potential for exposures to substances in the air; to splashes of liquids; and to direct contact with materials or substances due to the work being done at the incident site.

SELFCARE PRECAUTIONS FOR VICTIM ASSISTANCE

Selfcare precautions mean exactly that. The rescuer must take self-protective actions to keep from becoming another victim and thereby part of the problem rather than part of the solution.

First responders to a Haz Mat incident must take several important factors into consideration before making a decision to attempt an immediate rescue of the victims. First, and most importantly, will anything be gained by rescuing the victim? If the victim is obviously dead or conditions point to a high probability of death from injury or the exposure already suffered, a rescue should not be undertaken. If there is a likelihood of **severe** injury to rescuers, given the protective clothing they have available, from exposure to toxic substance, a rescue should not be attempted. **If the victim is in a confined space, no rescue should be attempted unless you have had specialized training to work in that environment.** In a case where removing the victim will be a life saving action, which can be accomplished with minimal adverse effect to the rescuers, initiation of a rescue may be a reasonable option.

When the pertinent factors have been considered and a decision has been reached to proceed with a rescue, all reasonable protective measures should be taken by rescuers. Properly trained response personnel should use positive pressure, Self Contained Breathing Apparatus (SCBA) and available protective clothing while working as quickly as possible to minimize their exposure to the toxic materials.

During the rescue, care must be taken to prevent further injury to the victim. While time cannot be spent accomplishing extensive spinal immobilization, etc., steps should be taken to prevent worsening severe injuries. Failure to do so could result in catastrophic complications to the victim.

Once the victim has been removed to a safe area and exposure to rescuers has been addressed, appropriate treatment should be initiated immediately. Priorities for treatment include insuring a patient airway, assisting breathing if necessary, supporting circulation (pulse) if needed, controlling **severe** bleeding and decontamination to prevent further poisoning. **Life Saving** measures should **not** be delayed to permit decontamination, but should be done simultaneously or immediately after decontamination.

Rescuers should ensure complete and effective decontamination of themselves by trained Haz Mat personnel as soon as possible after exposure.

Response personnel should be aware of the possibility of exposure to communicable diseases while handling a victim during a rescue. Transmission routes include blood, bodily fluids and droplet contamination via breathing. Use of barriers such as impermeable gloves, masks and body coverings and frequent hand washing and removal of any bodily fluids on the skin will minimize exposure.

It should also be noted that mouth-to-mouth breathing should be avoided. It is possible for the rescuer to become contaminated via ingestion, inhalation or absorption while administering mouth-to-mouth resuscitation. A bag valve mask or positive pressure oxygen unit should be used to ventilate the victim.

If a rescue is made of a contaminated, or possibly contaminated person, it is very important to prevent the spread of the contaminant. If at all possible the victim should be decontaminated, to the best of your ability, at the scene. After the decontamination, the victim, **and the rescuers**, will still be considered to be contaminated. If at all possible the victim should be transported by personnel who have not entered the contaminated area.

MODULE 3

DETECTING THE PRESENCE OF HAZARDOUS MATERIALS

Outline

- Module Objectives
- The six clues
 - Occupancy/Location
 - Container Shapes
 - Markings/Colors
 - Placards/Labels
 - Shipping Paper or other documents
 - Senses

MODULE 3 OBJECTIVES DETECTING THE PRESENCE OF HAZARDOUS MATERIALS

The students will be able to:

1. list and describe the six clues for recognizing the presence of hazardous materials.
2. identify the respective shape and probable contents of the following motor carriers: MC 306 (DOT 406), MC 307 (DOT 407), MC 312 (DOT 412), MC 331, MC 338.
3. list and describe the meanings of the symbols and colors in the four quadrants of the NFPA 704 System.
4. list the classes of hazardous materials found under the U.S. D.O.T. classification system.
5. identify five pertinent items of information on haz mat found on a properly filled out shipping paper.

DETECTING HAZARDOUS MATERIALS PRESENCE

SIX CLUES FOR DETECTING HAZARDOUS MATERIAL PRESENCE

- A. Occupancy and/or Location
- B. Container Shapes
- C. Markings and Colors (including identification numbers)
- D. Placards and Labels
- E. Shipping Papers and Other Documents
- F. Senses

A. OCCUPANCY AND/OR LOCATION

You should be familiar with various occupancies and locations in your community where hazardous materials are used, stored, transported, or produced. To accomplish this familiarization, you must complete pre-emergency planning and inspection activities.

TYPE OF FACILITY	HAZARDOUS MATERIALS COMMONLY FOUND AT FACILITY
AIRPORT AND MARINE FUEL DEPOTS	GASOLINES AND FUEL OILS
BREWERIES AND DISTILLERIES	ALCOHOLS
COMPRESSED GAS SUPPLIERS	MEDICAL AND INDUSTRIAL GASES
CONSTRUCTION FIRMS AND SITES	EXPLOSIVES, COMPRESSED GASES, FUELS
DRY CLEANERS.....	CLEANING SOLVENTS, PERCHLOROETHYLENE
ELECTRONIC CIRCUIT MAKERS.....	ACIDS
EMBALMING SUPPLY HOUSES.....	FORMALDEHYDE
FARM/GARDEN SUPPLY SHOPS.....	PESTICIDES, FERTILIZERS, HERBICIDES
FIREWORKS MANUFACTURERS.....	EXPLOSIVES, PYROTECHNICS
FOOD STORES OR WAREHOUSES	AMMONIA (REFRIGERATION SYSTEMS), COMBUSTIBLE DUSTS
FOUNDRIES.....	RESINS, OTHER CHEMICALS
FUEL OIL COMPANIES.....	FUEL OILS
FURNITURE STRIPPING OPERATIONS.....	SOLVENTS
GASOLINE STATIONS.....	GASOLINE, AUTOMOTIVE OILS, SOLVENTS
GUN AND AMMO SHOPS	AMMUNITION, EXPLOSIVES
HAZARDOUS WASTE DISPOSAL FACILITIES	VIRTUALLY ANYTHING
HOSPITALS.....	COMPRESSED GASES, CRYOGENICS, MEDICINES, RADIOACTIVE MATERIALS, ETIOLOGIC AGENTS
LABORATORIES, CHEMICAL AND BIOLOGICAL	VARIOUS CHEMICALS, ETIOLOGIC AGENTS
LAWN FERTILIZER COMPANIES.....	PESTICIDES, HERBICIDES, FERTILIZERS
LEATHER TANNERS.....	VARIOUS CHEMICALS
LP GAS OR PROPANE SUPPLIERS	LIQUEFIED FLAMMABLE GASES
PAINT, VARNISH, AND LACQUER MAKERS	RESINS, SOLVENTS, CHEMICAL PIGMENTS AND ADDITIVES
PEST CONTROL COMPANIES.....	PESTICIDES, POISONS
PLASTIC AND RUBBER MAKERS.....	SOLVENTS, ADDITIVES, BULK CHEMICALS
PLATING SHOPS.....	ACIDS, CYANIDES
PULP AND PAPER MILLS	BLEACHES, CAUSTICS, ACIDS, SULFUR COMPOUNDS, AND OTHERS
SCHOOL/UNIVERSITY CHEMICAL LABORATORIES.....	VARIOUS CHEMICALS
SWIMMING POOLS (PUBLIC).....	LIQUEFIED CHLORINE
SWIMMING POOL SUPPLY HOUSES	OXIDIZERS (CALCIUM HYPOCHLORITE), HYDROCHLORIC ACID, ALGAECIDES
STEEL MILLS	ACIDS, DEGREASERS
TEXTILE AND FIBER MANUFACTURERS	SOLVENTS, DYES, RESINS, VARIOUS OTHER BULK CHEMICALS
WATER TREATMENT FACILITIES.....	LIQUEFIED CHLORINE, ACIDS
WELDING SHOPS	COMPRESSED GASES, DISSOLVED ACETYLENE

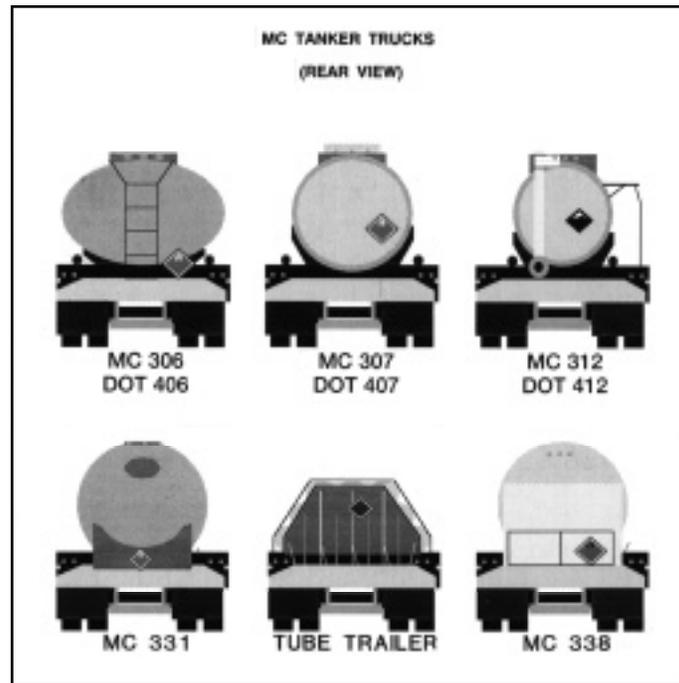
B. CONTAINER SHAPES

The general classifications of containers for hazardous materials are:

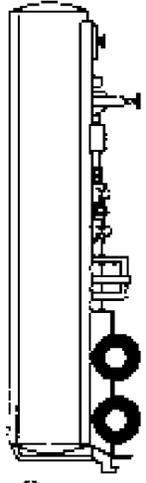
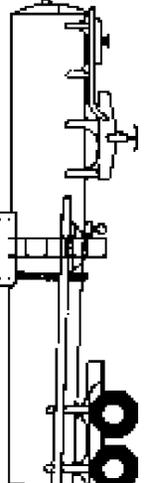
- Individual Containers
- Bulk Transport Containers
- Bulk Storage Containers

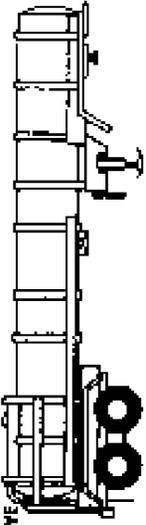
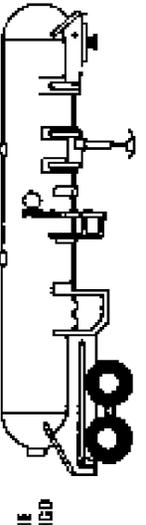
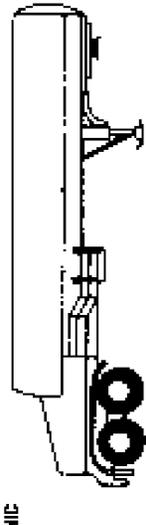
Some hazardous materials require specialized containment that has a specific shape, which can give a clue to the identity of the contents. Some samples of characteristic shapes are:

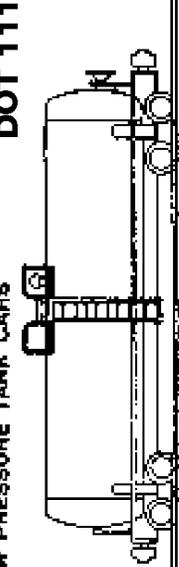
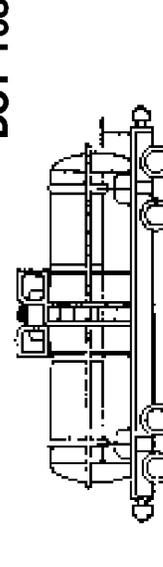
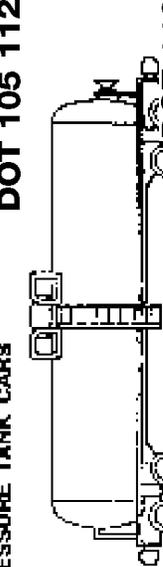
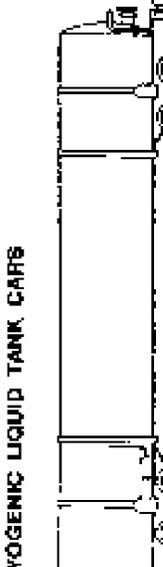
1. Cylindrical or elliptical containers with **flat** ends contain liquid at atmospheric pressure (for example, gasoline)
2. Cylindrical or elliptical containers with **rounded** ends contain gases under very high pressure (for example, liquefied petroleum gas)



- MC = MOTOR CARRIER**
DOT = DEPARTMENT OF TRANSPORTATION
- 306/406—NONPRESSURE LIQUID CARRIER, FLAT ENDS (GASOLINE OR FUEL OIL)
 - 307/407—LOW PRESSURE CHEMICAL CARRIER, ROUND ENDS
 - 307/407—FLAT BOTTOM—A ROUND CONTAINER SURROUNDED WITH INSULATION AND AN OUTER JACKET TO KEEP THE CONTENTS WARM
 - 312/412—SMALLER DIAMETER—CORROSIVE LIQUID CARRIER (HEAVIER THAN WATER)
 - 331—HIGH PRESSURE GAS CARGO TANK TRUCK
 - 338—CYROGENIC (COLD)

CARGO TANK TRUCKS		
CONTAINER SHAPE	DESCRIPTION	CONTENTS
<p>MC 306 (DOT 406) ATMOSPHERIC PRESSURE CARGO TANK TRUCKS</p> 	<ul style="list-style-type: none"> • OVAL CROSS SECTION INDICATES NON PRESSURIZED TANK LESS THAN 3 PSI. • USUALLY SINGLE SHELL ALUMINUM OR STEEL CONSTRUCTION. OTHER STEEL CONSTRUCTED TANKS MAY BE FOUND. • GENERALLY 5000 GALLONS MAXIMUM CAPACITY. 	<ul style="list-style-type: none"> • TRANSPORTS PETROLEUM PRODUCTS (GASOLINE, FUEL OIL, CLASS B POISONS).
<p>MC 307 (DOT 407) LOW-PRESSURE CHEMICAL CARGO TANK TRUCKS</p> 	<ul style="list-style-type: none"> • CIRCULAR CROSS SECTION WITH PRESSURES UP TO 25 PSI. • DOUBLE SHELL CONSTRUCTION WITH INSULATION THE MOST COMMON. • INSULATED TANKS MAY NOT APPEAR CIRCULAR IN CROSS SECTION. • ONE OR TWO COMPARTMENTS WITH DOUBLE PROTECTION. • GENERALLY 8,000 TO 11,000 GALLONS MAXIMUM CAPACITY. 	<ul style="list-style-type: none"> • TRANSPORTS FLAMMABLE AND COMBUSTIBLE LIQUIDS, MILD CORROSIVES, MILD CHEMICALS, ETC.

CARGO TANK TRUCKS		TRANSPORTS STRONG CORROSIVES
<p>MC-312 (DOT 412) CORROSIVE CARGO TANK TRUCKS</p> 	<ul style="list-style-type: none"> • 24000 GROSS WEIGHT, SMALLER DIAMETER WITH CORROSIVE ENDORSEMENTS AFTER JOB • MAY ALSO BE FOUND IN DOUBLE SHELL CONSTRUCTION • INSULATED TANKS MAY NOT APPEAR DIFFERENTIAL IN CROSS SECTION • GAUGING AND SPLASH PROTECTION AT DOME CONVEYANCE LOCATIONS • GENERALLY 5000 TO 6000 MAXIMUM CAPACITY 	<ul style="list-style-type: none"> • TRANSPORTS L.P. GASES AND ANHYDRUS AMMONIA (PARTICULARLY IN THE SPRING)
<p>MC-331 HIGH PRESSURE GAS CARGO TANK TRUCKS</p> 	<ul style="list-style-type: none"> • CIRCULAR CROSS SECTION WITH ROUNDED ENDS OR MEXOS • SINGLE SHELL MIN INSULATED TANK • UPPER TWO THIRDS PAINTED WHITE OR HIGHLY REFLECTIVE COLOR • LENGTH RANGES FROM 2500 TO 8000 • TAIL DEFLECTOR TRUCKS TO 11,500 GALLONS SPARE TANK TRUCKS 	<ul style="list-style-type: none"> • TRANSPORTS CYCLOPENTANOLIC LIQUIDS (P.C. FOR LIQUID NITROGEN LIQUID ARGON AND LIQUID CARBON DIOXIDE)
<p>MC-338 CRYOGENIC LIQUID TANK TRUCKS</p> 	<ul style="list-style-type: none"> • WELL RELATED 'INHERENT BOTTLE' DESIGN WITH FLAT TANK BODIES • DOUBLE SHELL TANK WITH RELIEF PROTECTION • OTHER HAVE VARIOUS DISCHARGING NORMALLY FROM RELIEF VALVES 	<ul style="list-style-type: none"> • TRANSPORTS COMPRESSED GASES (E.G. OXYGEN, NITROGEN, HYDROGEN)
<p>COMPRESSED GAS TRAILER</p> 	<ul style="list-style-type: none"> • OFTEN RETIRED TO AS A "TUBE IRON 60" • CYLINDERS ARE STACKED AND MANUFACTURED TOGETHER • PRESSURES RANGE FROM 3,000 TO 5,000 PSI • OFTEN FOUND AT CONSTRUCTION AND INDUSTRIAL SITES 	<ul style="list-style-type: none"> • TRANSPORTS COMPRESSED GASES (E.G. OXYGEN, NITROGEN, HYDROGEN)

RAILROAD TANK CARS		
CONTAINER SHAPE	DESCRIPTION	CONTENTS
<p>LOW PRESSURE TANK CARS</p>  <p>DOT 111</p>	<ul style="list-style-type: none"> • NON-ROTATIONAL TANK WITH FLAT, OR NEARLY FLAT, ENDS. • FITTINGS AND VALVING VISIBLE ON TOP OF CAR. • OLDER CARS WILL HAVE AN EXPANSION DOME WITH VISIBLE FITTINGS. • TANK PRESSURES LESS THAN 100 PS. • SYSTEM HAS BOTTOM INFLUENCING VALVE. 	<ul style="list-style-type: none"> • TRANSPORTS WIDE VARIETY OF LIQUIDS, MOLLEN SOLIDS AND SOME LIQUEFIED GASES.
 <p>DOT 103</p>		
<p>PRESSURE TANK CARS</p>  <p>DOT 105 112</p>	<ul style="list-style-type: none"> • HORIZONTAL TANK WITH ROUNDED ENDS. • FITTINGS AND VALVES ENCLOSED IN COOLIE. • RED-WHITE PAINT INDICATES SPRAYED ON THERMAL INSULATION. • BLACK PAINT USUALLY WILL INDICATE A JACKETED TANK CAR. 	<ul style="list-style-type: none"> • TRANSPORTS FLAMMABLE AND NON-FLAMMABLE COMPRESSED GASES AND CLASS A POISONS.
<p>CRYOGENIC LIQUID TANK CARS</p>  <p>DOT 113</p>	<ul style="list-style-type: none"> • WELL INSULATED THERMO BOTTLE DESIGN. • DOUBLE SHELL TANK SIMILAR TO STEEL STORAGE TANKS. • TRANSPORT LOW PRESSURE REFRIGERATED LIQUIDS (PRESSURE 25 PSIG OR LOWER). • ABSENCE OF ANY TOP FITTINGS. • LOADING UNLOADING FITTINGS AND SAFETY RELIEF DEVICE OTHER THAN IN CABINETS AT DIAGONAL CORNER OF ONE END AT 25-DIGIT LEVEL. 	<ul style="list-style-type: none"> • TRANSPORTS LIQUID OXYGEN, LIQUID HYDROGEN, LIQUID NITROGEN.

C. MARKINGS AND COLORS

There are many unique general markings that are associated with hazardous materials. Examples of these markings are:

- The NFPA 704 System
- Military Markings
- NJ Right to Know Labeling
- Product Labeling
- Lettering on Vehicles
- Identification Numbers
- Pipeline Markings

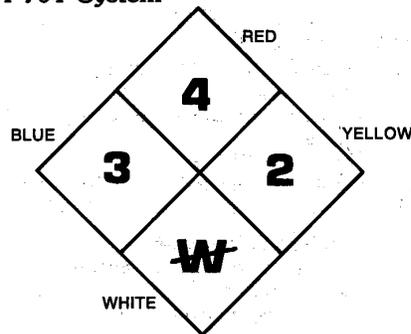
FIXED FACILITY

The NFPA 704 System (used at industrial facilities)

This system uses a diamond shaped diagram divided into four quadrants to identify the “health,” “flammability” and “reactivity” of a chemical. Severity is indicated by numbers 0 to 4, with 4 being the most severe.

The bottom space is primarily used to identify unusual reactivity with water. A W with a line through it alerts personnel to the possible hazard in use of water. This space may also be used to identify radiation hazard by displaying the propeller symbol or oxidizing material by displaying OXY.

NFPA 704 System



Health (Blue)

In general, health hazard in fire fighting is that of a single exposure which may vary from a few seconds up to an hour. The physical exertion demanded in fire fighting or other emergency conditions may be expected to intensify the effects of any exposure. Only hazards arising out of an inherent property of the material are considered.

The following explanation is based upon protective equipment normally used by fire fighters.

- 4** Materials too dangerous to health to expose fire fighters. A few whiffs of the vapor could cause death or the vapor or liquid could be fatal on penetrating the fire fighter's normal full protective clothing. The normal full protective clothing and breathing apparatus available to the average fire department will not provide adequate protection against inhalation or skin contact with these materials.
- 3** Materials extremely hazardous to health but areas may be entered with extreme care. Full protective clothing, including self-contained breathing apparatus, coat, pants, gloves, boots, and bands around legs, arms and waist should be provided. No skin surface should be exposed.
- 2** Materials hazardous to health, but areas may be entered freely with full-faced mask self-contained breathing apparatus which provides eye protection.
- 1** Materials only slightly hazardous to health. It may be desirable to wear self-contained breathing apparatus.
- 0** Materials which on exposure under fire conditions would offer no hazard beyond that of ordinary combustible material.

Flammability (Red)

Susceptibility to burning is the basis for assigning degrees within this category. The method of attacking the fire is influenced by this susceptibility factor.

- 4** Very flammable gases or very volatile flammable liquids. Shut off flow and keep cooling water streams on exposed tanks or containers.
- 3** Materials which can be ignited under almost all normal temperature conditions. Water may be ineffective because of the low flash point.
- 2** Materials which must be moderately heated before ignition will occur. Water spray may be used to extinguish the fire because the material can be cooled below its flash point.
- 1** Materials that must be preheated before ignition can occur. Water may cause frothing if it gets below the surface of the liquid and turns to steam. However, water fog gently applied to the surface will cause a frothing which will extinguish the fire.
- 0** Materials that will not burn.

Reactivity (Stability) (Yellow)

The assignment of degrees in the reactivity category is based upon the susceptibility of materials to release energy either by themselves or in combination with water. Fire exposure was one of the factors considered along with conditions of shock and pressure.

- 4** Materials which (in themselves) are readily capable of detonation or of explosive decomposition or explosive reaction at normal temperatures and pressures. Includes materials which are sensitive to mechanical or localized thermal shock. If a chemical with this hazard rating is in an advanced or massive fire, the area should be evacuated.

- 3** Materials which (in themselves) are capable of detonation or of explosive decomposition or of explosive reaction but which require a strong initiating source or which must be heated under confinement before initiation. Includes materials which are sensitive to thermal or mechanical shock at elevated temperatures and pressures or which react explosively with water without requiring heat or confinement. Fire fighting should be done from an explosive resistant location.
- 2** Materials which (in themselves) are normally unstable and readily undergo violent chemical change but do not detonate. Includes materials which can undergo chemical change with rapid release of energy at normal temperatures and pressures or which can undergo violent chemical change at elevated temperatures and pressures. Also includes those materials which may react violently with water or which may form potentially explosive mixtures with water. In advance or massive fires, fire fighting should be done a safe distance or from a protected location.
- 1** Materials which (in themselves) are normally stable but which may become unstable at elevated temperatures and pressures or which may react with water with some release of energy but not violently. Caution must be used in approaching the fire and applying water.
- 0** Materials which (in themselves) are normally stable even under fire exposure conditions and which are not reactive with water. Normal fire fighting procedures may be used.

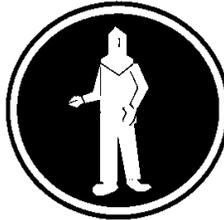
Military Marking Symbols

These symbols are used on many military facilities to indicate the presence of hazardous materials. In other cases, the first responder may find HMIS or NFPA 704 indicators.

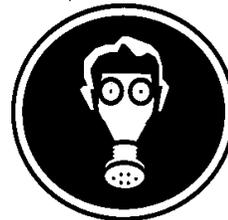
When the "WEAR FULL PROTECTIVE CLOTHING" figure is in red, this indicates a highly toxic aerosol or vapor potential. The "WEAR FULL PROTECTIVE CLOTHING" figure in yellow indicates a toxic aerosol or vapor potential. The "WEAR FULL PROTECTIVE CLOTHING" figure in white indicates material is spontaneously combustible.



APPLY NO WATER



WEAR FULL PROTECTIVE CLOTHING



WEAR
APR OR BREATHING APPARATUS



MASS DETONATION



EXPLOSIVE WITH FRAGMENT HAZARD



MASS FIRE HAZARD



MODERATE FIRE HAZARD

NJ Right To Know Labeling (NJ R.T.K. Law)

Every container at a worksite must bear a label with the identity of the five predominant substances and all hazardous substances in the container plus their Chemical Abstract Service (CAS) numbers. This is referred to as “universal labeling” under the New Jersey Worker and Community Right To Know Act (NJSA 34:5A-1). Any container with more than 1% of its contents unknown bears the label “contents partly unknown.”

The label must be a sign, emblem, sticker, or marker of durable nature affixed to or stenciled onto a container. The printing on the label must be easy to read, not obscured, and prominently displayed on the container.

Product Labeling

Warnings and safety information are often included by manufacturers as part of a product's label. These warnings are usually based on the greatest danger to the user of the product. Some key words to look for on a product label are:

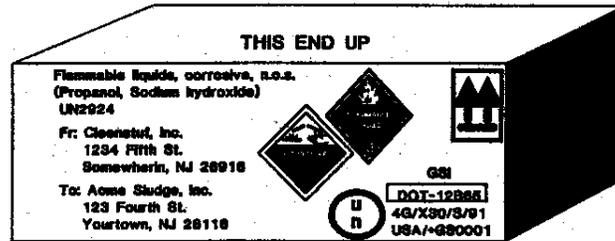
DANGER	HAZARD
WARNING	CAUTION
FIRST AID	POISON

These warnings can include information on specific hazards, first aid, and storage of the product. Warnings may be printed in a different style, a different color, underlined, or bordered to make them stand out from the rest of the label. This is not all there is to know about the product so you should still consult other sources of information.

TRANSPORTATION OF HAZARDOUS MATERIALS**Non-bulk Packaging**

When transporting large quantities of a single hazardous material meeting certain requirements will require the transport vehicle to be marked on each side and each end.

Non-bulk packaging should be marked with the proper shipping name and identification number preceded by "UN" or "NA." These are the identification numbers assigned to each proper shipping name of hazardous materials. Those preceded by a "UN" are considered appropriate for international transportation as well as domestic transportation. Those preceded by "NA" are associated with proper shipping names not recognized for international transportation, except to and from Canada. Identification numbers are not required on packages which contain limited quantities or ORM-D materials.



Bulk Packaging

Lettering on Vehicles

Certain commodities will be marked in lettering on the side of transportation vehicles. Three examples of this are:

- 1) cargo tank trucks transporting a compressed gas will mark each side and each end of the truck with the proper shipping name or appropriate common name, e.g. Refrigerant Gas. Also cargo tank trucks must be marked with the 4-digit ID number by using a placard and/or an orange panel;
- 2) trucks carrying medical waste will be marked "Medical Waste."
- 3) cargo tank trucks containing a Division 2.3 Material (Poison Gas) or a poisonous liquid subject to the "Poison-Inhalation Hazard" shipping paper description shall be marked "Inhalation Hazard" on two opposing sides.

Identification Numbers

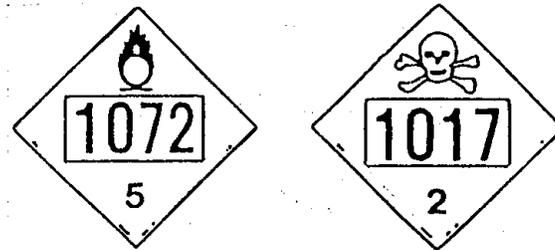
1. Identification numbers are required on each side and each end of a bulk package having a capacity of 1,000 gallons or more.
2. Identification numbers are required on two opposing sides of a bulk package having a capacity of less than 1,000 gallons.
3. Identification numbers on bulk packaging can be found on placards, plain white square-on-point displays, or orange panels.
4. No identification numbers will be found on RADIOACTIVE, EXPLOSIVES 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, DANGEROUS, or subsidiary hazard placards.

Examples of identification numbers:

- a. Orange Panel



- b. Center of appropriate placard.



Combustible placards used to display an identification number will have the entire background below the ID number white for rail transport and may be white during transportation by highway.

- c. Center of placard sized square-on-point white panel (marking) for hazardous substances and wastes not requiring a placard.

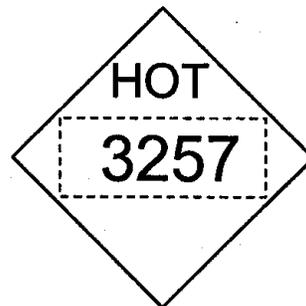
Marine Pollutant

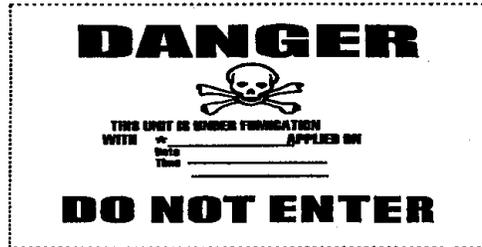
A marking showing a picture of a fish with an X through it indicates a marine pollutant.

**Elevated Temperature Material**

Transport vehicles carrying elevated temperature materials will be marked with a square-on-point marking indicating the word "HOT." Elevated temperature material means a material, that when offered for transportation or transported in a bulk packaging:

- 1) Is in a liquid phase and at a temperature at or above 212°F;
- 2) Is in a liquid phase with a flash point at or above 100°F that is intentionally heated and offered for transportation at or above its flash point; or
- 3) Is in a solid phase and at a temperature at or above 464°F.





Fumigant Marking

The Fumigant Marking must remain on the rail car, freight container, truck body, or trailer until the fumigant lading is unloaded, and the transport vehicle or freight container has undergone sufficient aeration to assure that it does not pose an unreasonable risk to health and safety.



Railcars

Look for identification numbers on the side of all railcars. Those numbers start with 4 letters and then a series of numbers. This number is like a license plate number for a railcar.

In addition, approximately 100 commodities are stenciled by name on the side in 4-inch-high letters.

Pipeline Transportation (Pipeline Markers)

Pipeline can be defined as the pipe, fittings, pumping apparatus, measuring techniques, storage facilities, and maintenance requirements to transport a commodity from one point to another. Pipelines transport numerous materials in either a liquid or gas state. The liquids range from heavy crude oils to liquified petroleum gases, to refined petroleum products, to anhydrous ammonia. However, technology is now being enhanced that will allow the movement of very thick liquids and some solids through pipelines.

Pipeline markers are placed over the buried line at road crossings, railroad crossings, and along the route the line travels. However, when the pipeline enters urban areas, the placement of markers at every road intersection would be impractical. In general, pipeline markers or warning signs should be located:

- a. at each public road crossing, railroad crossing, and in sufficient number along the remainder of each buried line. The latter may be found at fence lines, property lines, and right-of-way boundaries;
- b. where the pipeline is above ground and is accessible to the public, and;
- c. on each side of all crossings of navigable waterways.

It is important to remember that markings for gas pipelines have not yet been standardized. They may come in many variations and can be found in different locations. For example, it is not uncommon for a marker to be buried in the ground or to be shown as painted circles on asphalt. The marker will indicate the product being carried, the pipeline owner, and the emergency contact number.



Petroleum Products Pipeline

Procedures for Emergency Response Agencies

Signs Of A Pipeline Product Release

- **Sight**—A mist, white cloud or accumulation of petroleum on the ground. Dying vegetation on a green corridor.
- **Sound**—A hissing or roaring noise.
- **Smell**—Characteristic petroleum odor.

What To Do

- **Call** Pipeline Company and give the **location** of the problem.
- Remain **upwind**.
- Keep ignition sources (vehicles) **away**.
- Police should **prevent** the public from entering the area.
- The Fire Department should protect **public** and adjacent **property**.

What NOT To Do

- Do **not enter** the area.
- Do **not** attempt to **extinguish** a fully involved fire on the pipeline right-of-way.
- Do **not operate** pipeline valves.

The Pipeline Company Will

- **Shut down** the pipeline.
- Dispatch personnel to **investigate**.
- Close valves to **isolate** the problem.
- **Identify** hazardous areas.
- **Protect** the environment.
- **Excavate** and **repair** the damaged line.

Underground Utilities

Uniform Color Code as recommended by the American Public Works Association

RED—Electric

YELLOW—Gas, Oil, Petroleum Products

ORANGE—Telephone, Cable TV, Communications

BLUE—Water

GREEN—Sewer

PINK—Temporary Survey Markings

WHITE—Proposed Excavation

D. PLACARDS AND LABELS

Placards are 10.8" square-on-point markings. The placard provides recognition information in a number of ways.

1. Colored Background:
 - a. Orange indicates explosive material.
 - b. Red indicates flammable material.
 - c. Green indicates nonflammable material.
 - d. Yellow indicates oxidizing material.
 - e. White indicates poisonous material.
 - f. White with vertical red stripes indicates flammable solid.
 - g. Yellow over white indicates radioactive material.
 - h. White over black indicates corrosive material.
 - i. Blue indicates dangerous when wet.
 - j. White with vertical block stripes indicates miscellaneous hazardous materials. (international shipments only)

2. Symbols:
 - a. The bursting ball symbol indicates explosive material.
 - b. The flame symbol indicates flammable material.
 - c. The slashed W indicates dangerous when wet. (will be eliminated after 2001)
 - d. The skull and crossbones indicates poisonous material or on inhalation hazard.
 - e. The circle with the flame indicates oxidizing material.
 - f. The cylinder indicates nonflammable gas.
 - g. The propeller indicates radioactive material.
 - h. The test tube hand symbol indicates corrosive material.
 - i. The wheat stalk with the X through it indicates a poisonous material.

3. U.S. D.O.T. Classification System:

U.S. DEPARTMENT OF TRANSPORTATION CLASSIFICATION SYSTEM

CLASS NO.	DIVISION NO.	NAME OF CLASS
1	1.1	EXPLOSIVES (MASS EXPLOSION)
	1.2	EXPLOSIVES (PROJECTION HAZARD)
	1.3	EXPLOSIVES (FIRE HAZARD)
	1.4	EXPLOSIVES (NO SIGNIFICANT BLAST)
	1.5	VERY INSENSITIVE EXPLOSIVES (BLASTING AGENTS)
	1.6	EXTREMELY INSENSITIVE DETONATING SUBSTANCE
2	2.1	FLAMMABLE GAS
	2.2	NON-FLAMMABLE COMPRESSED GAS
	2.3	POISONOUS GAS
	2.4	CORROSIVE GAS (CANADIAN)
3	3	FLAMMABLE AND COMBUSTIBLE LIQUID FLAMMABLE (0-141°F FLASHPOINT) COMBUSTIBLE (141-200°F)
	3	FLAMMABLE AND COMBUSTIBLE LIQUID FLAMMABLE (0-141°F FLASHPOINT) COMBUSTIBLE (141-200°F)
4	4.1	FLAMMABLE SOLID
	4.2	SPONTANEOUSLY COMBUSTIBLE
	4.3	DANGEROUS WHEN WET MATERIAL
5	5.1	OXIDIZER
	5.2	ORGANIC PEROXIDE
6	6.1	POISONOUS MATERIALS
	6.2	INFECTIOUS SUBSTANCE
7	7	RADIOACTIVE MATERIAL
8	8	CORROSIVE MATERIAL
9	9	MISCELLANEOUS HAZARDOUS MATERIAL
ORM D		CONSUMER COMMODITIES

TRANSITIONAL PLACARDING PROVISIONS

AS OF OCTOBER 1, 2001 THE FOLLOWING PLACARDS CAN NO LONGER BE USED FOR **HIGHWAY TRANSPORTATION**:

- EXPLOSIVES A
- EXPLOSIVES B
- DANGEROUS CAN NO LONGER BE USED FOR EXPLOSIVES 1.4 AND 1.6
- BLASTING AGENTS CAN NO LONGER BE USED FOR EXPLOSIVES 1.5
- FLAMMABLE SOLID CAN NO LONGER BE USED FOR SPONTANEOUSLY COMBUSTIBLE FLAMMABLE SOLID WET
- FLAMMABLE SOLID WET

POISON CAN NO LONGER BE USED FOR DIVISION 6.1 PG1 (INHALATION HAZARD, ZONE A OR B) **ALL MODES OF TRANSPORTATION**

MUST DISPLAY HAZARD CLASS ON PLACARD.

HAZARD CLASS OR DIVISION	LABEL NAME
1.1	EXPLOSIVE 1.1
1.2	EXPLOSIVE 1.2
1.3	EXPLOSIVE 1.3
1.4	EXPLOSIVE 1.4
1.5	EXPLOSIVE 1.5
1.6	EXPLOSIVE 1.6
2.1	FLAMMABLE GAS
2.2	NON-FLAMMABLE GAS
2.3	POISON GAS
3 (flammable liquid)	FLAMMABLE LIQUID
Combustible Liquid	(none)
4.1	FLAMMABLE SOLID
4.2	SPONTANEOUSLY COMBUSTIBLE
4.3	DANGEROUS WHEN WET
5.1	OXIDIZER
5.2	ORGANIC PEROXIDE
6.1 (inhalation hazard, Zone A or B)	POISON INHALATION HAZARD
6.1 (other than inhalation hazard, Zone A or B)	POISON
6.2	INFECTIOUS SUBSTANCE ¹
7	RADIOACTIVE WHITE - I ²
7	RADIOACTIVE WHITE - II
7	RADIOACTIVE WHITE - III
7 (empty packages)	EMPTY
8	CORROSIVE
9	CLASS 9

¹The ETIOLOGICAL AGENT label specified in regulations of the Department of Health and Human Services may apply to packages of infectious substances.

²RADIOACTIVE LABELS are based on the transport index.

The appropriate hazard class or, for Division 5.1 or 5.2 the division number, shall be displayed in the lower corner of a primary hazard label and may not be displayed on a subsidiary label.

A special placard, designed to make high hazards more visible, is required for loads of certain materials when transported by rail.

Materials in this category include:

- Division 1.1 Explosives
- Division 1.2 Explosives
- Division 1.3 Explosives
- Division 2.3 Poison Gases
- Class 7 Radioactive Yellow III

The special marking requires that standard placard be placed “square-on-point” on a plain white background.

Labels are mostly small versions of placards. Labels may be found not only on metal containers, but also those made of wood, plastic, cardboard, and even paper bags. Labels may not be visible due to the way they are loaded. Containers are also sometimes intentionally mislabeled to prevent identification of illegally shipped material.

E. SHIPPING PAPERS AND OTHER DOCUMENTS

All **shipping papers** will have the following information:

1. Quantity of material (number of pieces i.e. number of drums)
2. Proper shipping name
3. Hazard Classification
4. Identification number
5. Packing group number
6. Correct weight (except cargo tanks and cylinders)
7. Emergency Response Telephone Number

NOTE: Certain classes of materials (explosives, flammable liquids, flammable solids, oxidizers, certain poisonous liquid materials, and corrosives) will require to have a packing group number listed after the UN identification number on the shipping paper. Other materials, such as poison gases and certain poisonous liquid materials, will be required to show a hazard zone designation after the other required information on the shipping paper.

Above information must be shown in sequence with no additional information interspersed.

- (A) Emergency Response Information is to be attached or part of the shipping papers and must contain Emergency Response Information:
 1. Description of Hazardous Materials
 2. Risks of fire or explosion
 3. Immediate hazards to health
 4. Immediate methods for handling small or large fires
 5. Immediate precautions to be taken in the event of an accident
 6. Initial methods for handling spills or leaks in the absence of fire; and
 7. Preliminary first aid measures.

Emergency Response Telephone Number could be an agency such as Chemtrec, if they accept responsibility for providing detailed information.
- (B) Emergency Response Information is to be on the shipping paper; in a document, other than a shipping paper such as a material safety data sheet, or in a separate document, such as an emergency response guidance manual.

SHIPPING PAPERS LOCATION CHART			
<u>MODE OF TRANSPORTATION</u>	<u>TITLE OF SHIPPING PAPER</u>	<u>LOCATION OF SHIPPING PAPER</u>	<u>RESPONSIBLE PERSON</u>
Highway	Bill of Lading	Cab of Vehicle	Driver
Rail	Waybill / Consist	With Conductor or	Conductor or Engineer
Water	Dangerous Cargo Manifest on Barge	Wheelhouse or Pipelike Container	Captain or Master
Air	Air Bill with Shippers Certification for Restricted Articles		

**EXAMPLES OF MATERIAL DESCRIPTION FOUND
ON SHIPPING PAPERS:**

GASOLINE, 3, UN1203, PG II

PROPER SHIPPING NAME = GASOLINE
DIVISION NUMBER = 3
IDENTIFICATION NO. = UN1203
PACKING GROUP = PG II

SODIUM PHOSPHIDE, 4.3, UN1432, PG I, DANGEROUS WHEN WET

SULFURIC ACID, 8, UN1830, PG II

CALCIUM CYANIDE, 6.1, UN1575, PG I, RQ, (MARINE POLLUTANT)

Since this material is listed as a Marine Pollutant under U.S. D.O.T. Title 49 (HM-211) the words "Marine Pollutant" must be entered on the shipping paper in association with the basic description.

PACKING GROUP I = VERY DANGEROUS MATERIALS

PACKING GROUP II = MODERATE DANGER

PACKING GROUP III = MINOR DANGER

NO PACKING GROUPS FOR CLASS 2, CLASS 7, DIVISION 6.2 (OTHER THAN REGULATED MEDICAL WASTES) AND ORM-D MATERIALS

CHLORINE PENTAFLUORIDE, 2.3, UN2548, POISON-INHALATION HAZARD, ZONE A

PROPER SHIPPING NAME = CHLORINE PENTAFLUORIDE
DIVISION NUMBER = 2.3
IDENTIFICATION NO. = UN2548
HAZARD ZONE = ZONE A

HAZARD ZONES A & B = EXTREME DANGER—SMALL CONCENTRATIONS

HAZARD ZONE C = VERY DANGEROUS—LARGER CONCENTRATIONS

HAZARD ZONE D = DANGEROUS—LARGER CONCENTRATIONS

HAZARD ZONES ARE FOR 2.3 (POISON GAS) AND CERTAIN 6.1 (LIQUID) DIVISION MATERIALS ONLY

RQs ARE REPORTABLE QUANTITIES LISTED FOR MATERIALS DESIGNATED AS HAZARDOUS SUBSTANCES UNDER THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT.

EXAMPLES OF SHIPPING PAPERS

NO. PACKAGES	DESCRIPTION OF ARTICLES AND SPECIFICATIONS	WEIGHT
CHEMTREC 1-800-424-9300	EXAMPLE OF EMERGENCY CONTACT NUMBER	
2 drums	ALLYL ALCOHOL, 6.1, UN 1098, PG I, POISON-INHALATION HAZARD, ZONE B	714 lbs
25 pkg	SODIUM PHOSPHIDE, 4.3, UN 1432, PG I, DANGEROUS WHEN WET	2,000 lbs
20 pkg	SULFURIC ACID, 8, UN 1830, PG II	304 lbs
SHIPPING NAME	EXTENSION NO.	
	ID NO.	
	PACKING GROUP NO.	

MATERIAL SAFETY DATA SHEETS

Material Safety Data Sheets (MSDS) are required by OSHA 29 CFR 1910.1200 as the primary communications link between chemical manufacturers and chemical users or handlers. The Material Safety Data Sheet is source of information supplied by manufacturers on the materials that they produce. The MSDS deals with products (which may be mixtures of several chemicals) as they come from the shelf. An MSDS is written in nine sections and may be a single or multi page document. The sections of the document (not necessarily in this order) are:

1. Identity (material and manufacturer)
2. Physical data
3. Hazardous ingredients
4. Fire and explosion hazard data
5. Health hazard data
6. Reactivity data
7. Spill or leak procedures
8. Special protection required
9. Special precautions and comments

Warning: not all MSDSs are created equally! While MSDSs are required to contain certain information, not all of the suppliers of MSDSs pay close attention to the accuracy of information on the sheet. Look on the sheet for a telephone number to call in emergencies.

HAZARDOUS SUBSTANCE FACT SHEETS

The Department of Health **Hazardous Substance Fact Sheets** will tell you about the behavior of over 2,000 pure substances that the DOH has placed on the New Jersey Hazardous Substance List. The Fact Sheet is written in a six-page standard format. **Page six is the most important page for emergency responders.** On this page, you will find NFPA hazard ratings, emergency information, and physical data for the material.

On the other pages of the Fact Sheet you will find:

page 1; Identification, hazard summary, exposure limits, and ways to reduce exposure.

page 2; Health hazard information, medical testing to detect exposure, and workplace controls.

page 3; Personal protective equipment required by industrial workers.

page 4; Handling and storage procedures, common questions from the public.

page 5; Glossary of terms.

Department of Health Hazardous Substance Fact Sheets are an excellent source of information for hazardous materials. Every county lead agent has a library of the reference documents. Emergency Response Teams can obtain complete sets of Fact Sheets from the DOH.

The fact sheets discuss means of exposure, acute and chronic health effects, medical testing, workplace controls and practices, PPE, handling and storage, common questions and answers, definitions, and emergency information for individual hazardous substances.

F. SENSES

“Senses” includes any personal physiological reactions to incident proximity, such as smell, odd noise, dizziness, etc.

Senses can be very valuable and give immediate clues to the presence of hazardous material. Unfortunately they may also be the most difficult clues to teach because of the multiplicity of products, variations in discharge and impact, and differing individual physiological reactions. For example, a smell can be “mild” to one person and extremely “offensive” to another. For another example, a given material might have certain characteristics that its cousin, slightly different but equally hazardous, will not have at all.

Some specific products may have unique and distinctive smells or discharge appearances that would be apparent to anyone.

Intentional use of those senses that require contact (smell, taste, feel) with a material is **NOT** recommended for detection.

Many of the sense clues mentioned should be detected mechanically or chemically. In many cases, if you do personally smell something, **it may be too late**. However, if a product does have a distinctive odor or other characteristic, and you inadvertently encounter it (even though it is NOT recommended) then it is important that you recognize that the odor is a signal that you are being exposed to the material and that you should go to an uncontaminated area.

MODULE 4

THE USDOT EMERGENCY RESPONSE GUIDEBOOK

Outline

- Module Objectives
- DOT Emergency Response Guidebook—A Handout

How to use the book

- Shipping papers and placards
- 4 digit ID No. and material name
- Explosives
- United Nations Classification system
- Isolation/Protective Action Distance Tables

MODULE 4

OBJECTIVES

THE USDOT EMERGENCY RESPONSE GUIDEBOOK

The students will be able to:

1. Demonstrate, utilizing a USDOT ERG, knowledge of:
 - a. where the instructions for the use of the book are.
 - b. where the four digit ID numbers are found in ascending order.
 - c. where the shipping names are found in alphabetical order
 - d. how to find the guide page for a specific four digit ID number and shipping name
 - e. how the information is listed on the guide pages.
 - f. where information on explosives is provided.
 - g. where Chemtrec information is listed.
 - h. the use of the Isolation/Protective Action Distance Tables, given a specific shipping name.
 - i. identifying proper guide pages based on generalized placards.

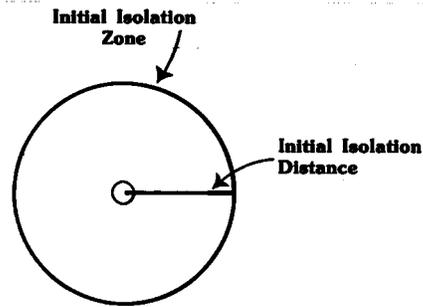
ISOLATION/PROTECTIVE ACTION DISTANCE

Prior to an anticipated air release of a hazardous material, a circular evacuation strategy may be appropriate. Evacuation might also be based on prevailing wind conditions. These strategies are illustrated below. When a large number of people are involved, the evacuation should be staged, that is, areas closest to the site should be evacuated first and the evacuation zone gradually expanded.

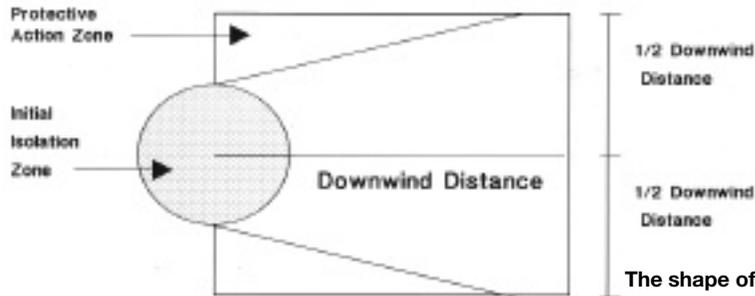
ISOLATION DISTANCE

Determine if the incident involves a SMALL or LARGE spill. Generally a SMALL SPILL is one which involves a single, small package (i.e., up to a 55 gallon drum), small cylinder, or a small leak from a large package. A LARGE SPILL is one which involves a big spill from an opening in a large package or spills from many small packages. (See the "Background" information for this table for more explanation.)

Look up the initial ISOLATION distance. Direct that all persons move, in a crosswind direction, away from the spill to that distance.

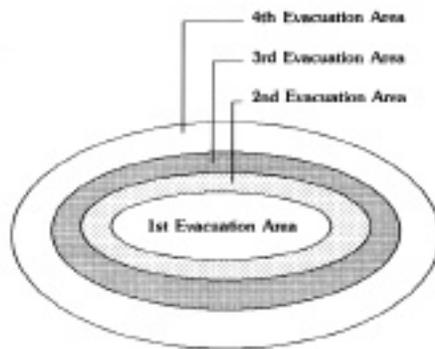


1st Evacuation Area



The shape of the area in which protective actions should be taken (the Protective Action Zone) is shown in this figure. The spill is located at the center of the small circle. The circle represents the ISOLATION zone around the spill.

STAGED EVACUATION



Large scale evacuations require that the area closest to the incident be evacuated first. Then the area can be expanded by stages.

MODULE 5

SCENE MANAGEMENT

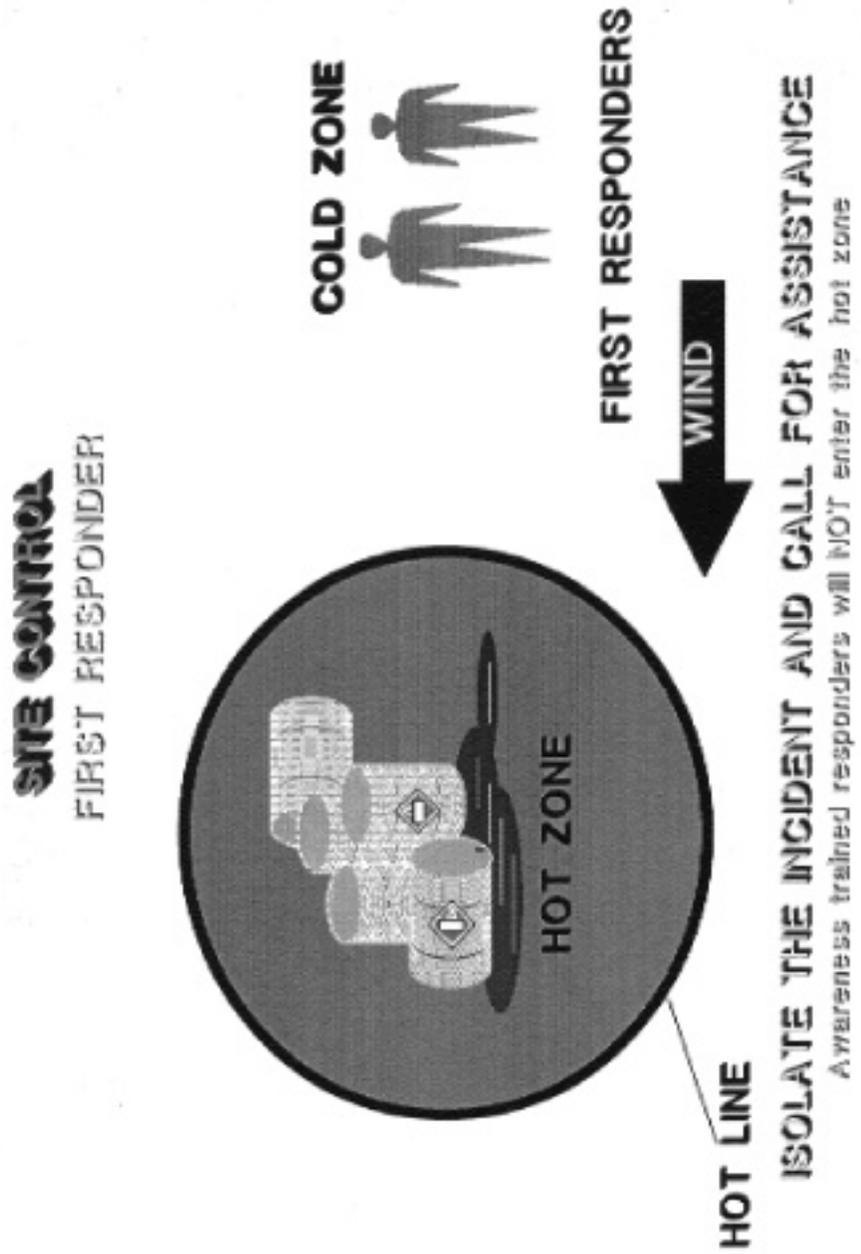
Outline

- Module Objectives
- Basic Scene Setup
- The levels of incidents I thru III
- The Incident Command System
 - Command
 - Operations
 - Planning
 - Logistics
 - Finance/Administration
- Scene Management

MODULE 5 OBJECTIVES SCENE MANAGEMENT

The students will be able to:

1. list the three zones used to establish site control.
2. list the four primary features of the ICS.
3. list and describe the five functions of the ICS.
4. describe what function in the ICS retains responsibility for those functions not delegated.



INCIDENT COMMAND SYSTEM (ICS)

Although many systems exist throughout the nation for the command and control of resources at emergency incidents, the National Fire Academy has adopted the Incident Command System (ICS) as its base for teaching the concepts of incident command. The ICS is recognized by the Academy as a system that is documented and has been successfully used in managing available resources at emergency operations.

The system consists of procedures for controlling personnel, facilities, equipment, and communications.

It is designed to begin developing from the time an incident occurs until the requirement for management and operations no longer exists. The “Incident Commander” is a title which can apply equally to an engine company captain, or the chief of a police department, depending upon the situation. The structure of the ICS can be established and expanded depending upon the changing conditions of the incident. It is intended to be staffed and operated by qualified personnel from any emergency services agency and may involve personnel from a variety of agencies.

As such, the system can be utilized for any type or size of emergency, ranging from a minor incident involving a single unit, to major emergency involving several agencies. The ICS allows agencies to communicate using **common terminology and operating procedures**. It also allows for the timely combining of resources during an emergency.

The ICS is designed to be used in response to emergencies caused by fires, floods, earthquakes, hurricanes, riots, hazardous materials, or other national or human-caused incidents.

FOUR PRIMARY FEATURES OF THE INCIDENT COMMAND SYSTEM

Adaptability—an all hazards incident management system that readily adapts itself to your incident

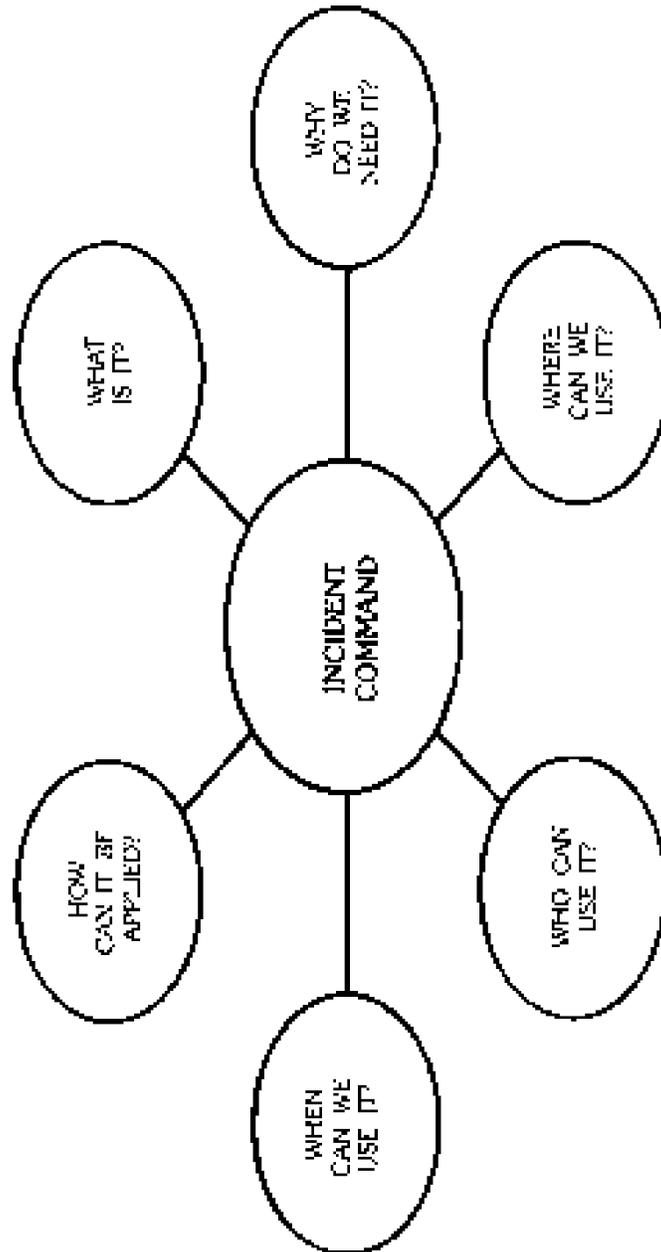
Flexibility—easily expands as the incident expands just by adding additional ICS elements

Span of Control—no more than five subordinates for one supervisor

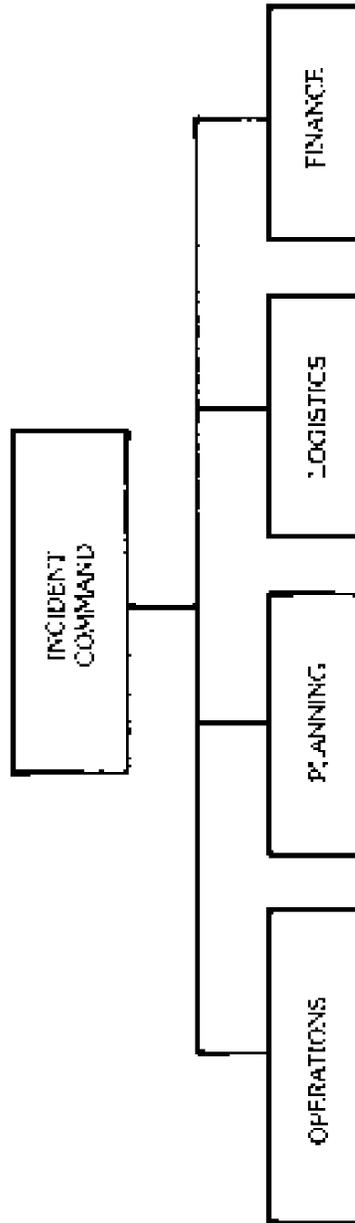
Unity of Command—a chain of command that is established

—everyone knows who’s in charge

—everyone knows who to report to



FIVE MAJOR FUNCTIONS

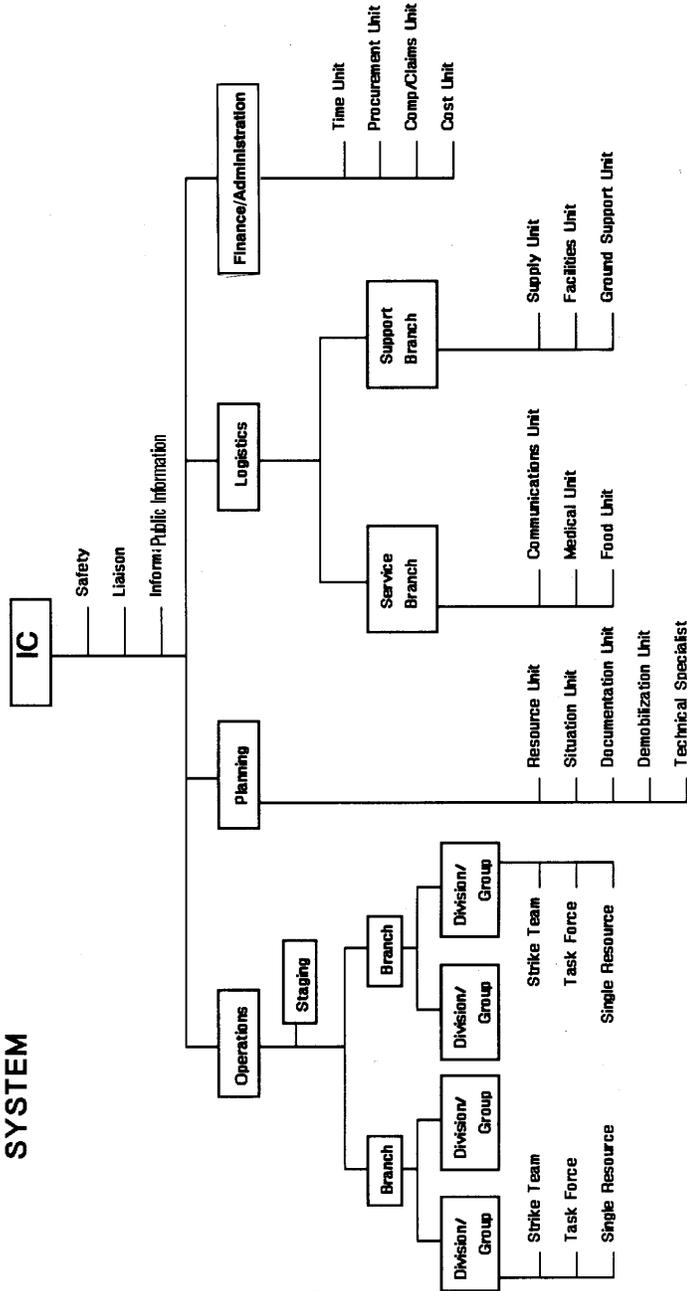


The ICS has five major functional areas:

- Command: The Command function manages the incident including establishing strategic goals, and ordering or releasing resources (personnel and equipment). Note: Command has responsibility for the other four functions until and if they are delegated.
- Operations: The Operations function directs all incident tactical resources to accomplish the goals and objectives developed by command. Operations assures that the personnel and equipment at the scene are used to perform effective mitigation.
- Planning: The Planning function is responsible for the collection and evaluation of information important to the incident. This leads to the development of action plans. Planning is ongoing.
- Logistics: The Logistics function provides the services and supplies needed to support tactical operations. It may be as simple as arranging for refueling of vehicles or as complicated as feeding hundreds of people.
- Finance: The Finance function procures equipment deemed necessary on-site, keeping records on overtime on more complex larger operations.

NOTE: The command function could handle 90% to 95% of most incidents without staffing any of the other four functions.

**MODEL
INCIDENT
COMMAND
SYSTEM**



SCENE MANAGEMENT

Remember, at any incident, small or large, involving emergency response, one person must be in command; assess the situation and available resources, determine an appropriate incident action plan, monitor the plan's effectiveness, and continually modify the plan to meet the realities of the situation.

When responding to an incident remember the following guide:

1. Immediately notify your agency dispatcher that you are involved in a possible hazardous materials incident. Establish command at a safe location (upwind, uphill) and provide dispatcher with the following information:
 - location of command, i.e. Main St. command
 - exact location of incident
 - type or types of vehicles involved
 - type or types of structures involved
 - type of substance release or involved (6 CLUES)
 - amount of material released
 - presence of fire, spilled liquids, vapor leaks
 - physical state of property (gas, liquid, solid)
 - incident description
 - known injuries
 - public evacuations, public exposure?
 - assistance needed (i.e., haz mat teams, DEP)
 - route to approach scene safely (i.e., wind direction)
 - have dispatcher notify the DEP hotline
2. Be alert to signs of escaping hazardous materials. Note sounds of escaping gas, odd smells, vapor clouds, etc.
3. Do not remain in the path of a vapor cloud or leaking materials. Vehicles can be an ignition source for flammable materials.
4. Do not use flares in the vicinity of flammable materials. For example, escaping clouds of propane could travel along the ground for hundreds of feet looking for an ignition source.
5. Establish an isolation distance and prohibit traffic from passing through the incident. This distance will depend on the type of material, amount of release, and the location of the incident.

6. Avoid contact with the material.
7. Many hazardous materials incidents need to be handled by personnel who are better trained and have the personal protective clothing to handle the situation.

**NJ DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON DISPATCH HOTLINE—1-877-WARNDEP
(EMERGENCY ACTION LINE)**

The following page is a reprint of the NJDEP Emergency Hotline “Communications Center Notification Report.” When reporting an incident to the Hotline, or if contacted by them for information, you should be prepared to provide as much information as possible.

While State law requires “immediate” notification to the Hotline, it may take some time to gather all the information listed on the NJDEP Notification Report. A good rule of thumb is to call the Hotline once you have gathered the following minimum information:

- | | |
|--|---------------------------------|
| —TIME OF OCCURRENCE | —AMOUNT INVOLVED |
| —LOCATION | —GAS/LIQUID/SOLID? |
| —RESPONSIBLE PARTY &
CONTACT NUMBER | —IS MATERIAL CONTAINED? |
| —MATERIAL INVOLVED | —INJURED/DEAD/EVACUATED? |
| —PLACARD NUMBER | —ROAD CLOSED? |
| | —AGENCIES EN ROUTE/
AT SCENE |

If the nature of the incident is such that immediate notification is advisable you can call in an initial report with what you have time to give, and then call back to provide more complete information.



DEP-090
12/90

New Jersey Department of Environmental Protection

COMMUNICATIONS CENTER NOTIFICATION REPORT

Received

TD Log #

Operator

Reviewed By

Case #

Reported By		Notification Type		Affiliation		Phone	
Street Address				Municipality		State	
Site:		Incident Location:				Phone	
Street Address		Street Address		Municipality		County State	
Location Type				Incident Date		Time	
Substance Released		Amount Released (CAS #		Release Is	
ID		State					
Additional Substances		Substance Contained?		Hazardous Material?		TCPA?	
		COMU Code		Referral Code		A310 Letter?	
Incident Description							
Injuries?		Public Evac?		Facility Evac?		Public Exposure?	
Police On Scene?		Firemen On Scene?		DEP Requested?		Wind Sp/Dir	
Contamination Of				Receiving Water			
Status at Scene							
Responsible Party							
Party						Phone	
Contact		Street Address		Municipality		Title County State	

OFFICIALS NOTIFIED						
	Name	Affiliation	Phone	Date	Time	
NJSP						
MUNIC						
OTHER						
1	Name	Affiliation	Method	Date	Time	T/M
2						
3						

COMMENTS

PROTECTING YOU

THE PUBLIC EMPLOYEES OCCUPATIONAL SAFETY AND HEALTH ACT (PEOSHA)

New Jersey Department of Health

The Public Employees Occupational Safety and Health Act (PEOSHA) requires that employers provide public employees “with employment and a place of enjoyment which are free from recognized hazards which may cause serious injury or death. . . .”

Employee Rights

Any employee, group of employees or employee representative who believes that a violation of a standard exists, or that an imminent danger exists, may request an inspection by giving notice to the applicable authority of the violation or danger.

The applicable commissioner shall encourage any employee, any group of employees or employee representative who believes that a violation of a standard exists, or that an imminent danger exists, to report that violation or danger to the employer’s safety officer.

The employer, the employee or employee representative shall be given the opportunity to accompany the applicable commissioner during an inspection for the purpose of aiding in such inspection.

Any employee who accompanies the applicable commissioner on an inspection shall receive payment of normal wages for the time spent during the inspection.

Inspection for Hazards

The commissioners of Labor, Health and Community Affairs are charged with making inspections in all their respective regulated areas, and have the right of entry at reasonable hours into any workplace when there is reason to believe that a violation of standards exists.

They also have authority to inspect any premises for purposes of investigating an alleged violation of standards and such inspection shall not be limited to the alleged violation but shall extend to any other area of the premises in which there is reason to believe that a violation of standards exists.

If the commissioner determines that an employer has violated a provision of this act, or a standard or regulation promulgated under this act, he is authorized to issue to the employer a written order to comply with the standard or regulation and shall fix a reasonable time for compliance.

Protection for Employees Filing Complaints

No person shall discharge, or otherwise discipline, or in any manner discriminate against any employee because of the exercise by such employee on behalf of himself or others of any right afforded by the act.

Any employee who believes that he has been discharged, disciplined or otherwise discriminated against may, within 180 days bring action in the Superior Court against the person alleged to have violated provisions of the act.

In any such action, the Superior Court shall have jurisdiction, for cause shown, to order all appropriate relief, including rehiring or reinstatement of the employee to his former position with back pay.

Enforcement

The Public Employees Occupational Safety and Health Act is administered and enforced by the Department of Labor.

Inspections are conducted by the Department of Labor, the Department of Health and the Department of Community Affairs.

Complaints of unsafe or unhealthy conditions can be made on a 24-hour-a-day basis by calling the Department of Labor's hotline: 1-800-624-1644.

Further information can be obtained by calling: (609) 292-7036.

HAZARDOUS MATERIALS REGULATIONS FOR NEW JERSEY EMERGENCY RESPONDERS

The New Jersey Public Employees Occupational Safety and Health (PEOSH) Act has adopted OSHA's regulation, 29 C.F.R. 1910.120 "Hazardous Waste Operations and Emergency Response" for New Jersey public employees. The New Jersey State Department of Health (DOH) PEOSH Program is responsible for conducting inspections and determining compliance with this regulation for New Jersey public work places.

What Types of Work Are Covered?

In an effort to reduce the injuries and illnesses which commonly occur from hazardous materials, 29 C.F.R. 1910.120 governs the manner by which three major categories of operations involving hazardous materials are handled.

- Hazardous Waste Sites
- Hazardous Materials Treatment Storage and Disposal Facilities
- Hazardous Materials Emergency Response Activities

This information bulletin focuses on the third category.

Who Is Covered?

The largest group of New Jersey public employees potentially affected by this standard are those involved in emergency response to hazardous materials incidents. This group includes:

- Firefighters
- Police Officers
- Emergency Medical Services Personnel
- Hazardous Materials (Haz Mat) Teams
- Public Works Employees
- Emergency Management Coordinators
- Local/County Health Officers

What Are the Major Requirements?

Section q of this standard contains many detailed provisions. What follows is a brief summary of the major requirements for emergency response activities. Please obtain a copy of the standard for specific requirements as they relate to your organization.

Emergency Response Plan

An emergency response plan (ERP) must be developed and implemented prior to the commencement of emergency response operations. It must include pre-emergency planning protocols for personnel and lines of authority, site control measures, and procedures for handling emergency incidents including necessary air monitoring. This plan must be in writing and be available for review and copying by employees, their representatives, and PEOSH inspectors. Every New Jersey municipality must develop an ERP. The plan for individual departments should be integrated into the ERP for the municipality. The New Jersey Department of Health PEOSH Program has developed an ERP guide to assist municipalities in complying with the ERP requirements.

The ERP is different from the Emergency Operations Plan (EOP) Haz Mat Annex required by the New Jersey State Police Office of Emergency Management. The purpose of the ERP is to protect emergency response personnel and the primary purpose of the EOP is to protect the community and the environment.

Training for Employees

The employer must provide an appropriate level of training for employees involved in Haz Mat emergencies.

For employees likely to witness a release of a hazardous material and expected only to initiate appropriate notification procedures, training or demonstrated competency at the "First Responder Awareness Level" is required (no minimum number of hours).

Employees expected to protect nearby sites or personnel through defensive measures (such as diking), but who do not in any way handle or come in contact with the hazardous material, are to be trained or demonstrate competency at the “First Responder Operations Level” (minimum eight hours).

Employees responsible for handling leaking containers and taking other actions to terminate the release of a hazardous material must receive training at the “Hazardous Materials Technician” or “Hazardous Materials Specialist” level (minimum 24 hours).

Employees who will assume control of an incident scene beyond the awareness level must receive training at the “On Scene Incident Commander” level (minimum 24 hours including operations level).

Annual re-training or demonstrated competency is required at all levels.

How Does This Training Fit In With NJ Right to Know Training?

Since 1985, emergency responders, like all New Jersey public employees who are potentially exposed to hazardous substances as part of their work activities, have been required to receive hazardous substance training pursuant to the New Jersey Worker and Community Right to Know (RTK) Act (N.J.A.C. 8:59-6). Annual refresher training is required. The State Police Office of Emergency Management has incorporated RTK required information into their “Awareness” and “Operations” level courses. Firefighters who take both the Awareness and Operations level courses (using the May 1990 or later manual) will be considered to have received required RTK training.

Medical Surveillance

Members of Hazardous Materials Teams responsible for handling leaking containers and other actions to terminate the release of a hazardous material must receive baseline physical examinations and yearly exams to evaluate the potential for impairment due to overexposure. These examinations are to be provided at no cost to employees and at a reasonable time and place. Employees who exhibit signs or symptoms which may have resulted from exposure to hazardous substances during the course of an emergency incident, either immediately or subsequently, shall be provided with medical consultation.

Chemical Protective Clothing

Employees shall be provided with chemical resistant clothing and respiratory protection as appropriate to ensure protection from overexposure. Positive pressure Self-Contained Breathing Apparatus is to be used whenever there is a potential inhalation hazard, until air monitoring determines that a decreased level of respiratory protection will not result in hazardous exposures to employees.

How Can Training be Arranged?

Required Training can be obtained through a number of sources. Consultants or other means of obtaining required training may be used, provided that the training content meets the minimum requirements outlined in the standard.

One way of obtaining this training is through the New Jersey State Police. The New Jersey State Police, Office of Emergency Management, DP/HMERP Unit, has developed free training programs for emergency responders involved in hazardous materials incidents. To arrange training contact the County Haz Mat Training Coordinator for your county. The telephone number for the County Haz Mat Training Coordinator may be obtained from your County Emergency Management Coordinator. The New Jersey State Police HMRU may be reached at (732) 727-4040 for further information regarding training.

For More Information

For employee complaints, a copy of the Emergency Response Plan Guide, a copy of the "Hazardous Waste Operations and Emergency Response" standard, or for information regarding it, contact the DOH PEOSH Program at (609) 984-1863.

What Does the Classification MVA (Motor Vehicle Accident) Mean to the Awareness Level Responder?

Generally it means that there may be small quantities of liquids from motor vehicles spilled on the highway. **These liquids would be gasoline, motor oil, transmission fluid and antifreeze but not cargo from tank trucks.**

What Four Things Are the Responsibility of the Awareness Level Responder at an MVA?

1. Do not make intentional contact with material (i.e., do not stand in puddle of gasoline).
2. Do not allow the material to be washed down into sewers or streams.
3. Take appropriate defensive actions (i.e., spread sand, earth or other appropriate absorbants on the material).
4. Notify the DEP Hotline with information on:
 - Location of spill
 - Quantity spilled
 - Material involved
 - Is water source involved

If cleanup is an issue, the County Environmental Health Agency can submit a request to the DEP to classify the material for disposal at an authorized landfill.

This process is not automatic or immediate but the material cannot be moved or disposed of without this authorization.

There Was an MVA on a Local Road Last Month. I Noticed That Barrels Are Still on the Side of the Roadway. Why?

The material has been cleaned up and is in the barrels awaiting removal.

The disposal facility requires that the material be analyzed **before** it will accept the hazardous waste.

Unfortunately, this can take weeks. You are encouraged to discuss the disposal of the spilled material with the DEP. You are **NOT** authorized to bring it back to your department yard for storage.

What About Larger Spills Such as Saddle Tanks on a Truck?

The spiller is responsible to notify the DEP Hot Line. The material should be confined as in the previous case.

Cleanup of the material must be immediate and the material disposed of through an authorized facility. The spiller is responsible for the cleanup and disposal costs.

NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW ACT

P.L. 1983, C. 315, N.J.S.A. 34:5A-1 et seq.

What Is the Right to Know Act?

The New Jersey Worker and Community Right to Know Act requires public and private employers to provide information about hazardous substances at their workplaces to:

- Give public employees information about what chemicals are located at their workplace and how to work with these hazardous substances safely.
- Help firefighters, police, and other emergency personnel respond properly at hazardous substance incidents such as fires, explosions, or spills.
- Help public officials plan for safer communities.
- Provide data for monitoring and tracking hazardous substances in the workplace and environment.

Who Is Responsible for the Right to Know Act?

There are three state agencies that work together implementing the Right to Know (RTK) law. These are:

Department of Health (DOH): DOH primarily enforces the Right to Know Act in public workplaces. DOH also enforces Right to Know labeling in private workplaces. DOH prepares materials such as Hazardous Substance Fact Sheets, the RTK poster, *The Worker's Guide to the New Jersey Right to Know Law* and the *Worker Education and Training Manual* to increase awareness of hazardous chemicals and help public employers comply with the RTK law in the workplace.

Department of Environmental Protection (DEP): DEP enforces the community portion of the RTK law (except labeling). DEP is also responsible for implementing Title III (Emergency Planning and Community Right to Know) of the federal Superfund Amendments and Reauthorization Act (SARA). In the Community Right to Know Survey, DEP has merged both the federal and state programs.

Department of Labor (DOL): DOL collects the RTK fees from private employers and investigates complaints by workers who are being discriminated against for exercising their rights under the RTK law.

How Does the Act Work?

All employers covered by the Act must complete hazardous substance inventory reports giving the names and quantities of dangerous chemicals stored and used at the facility.

The completed surveys from *public employers* (called *Right to Know Surveys*) are sent to the New Jersey Department of Health, while surveys from *private employers* (called *Community Right to Know Surveys*) are sent to the New Jersey Department of Environmental Protection. Both surveys are sent to local fire and police departments, and County Lead Agencies. Local emergency planning committees currently receive only the Community RTK Survey. The public has access to these surveys through the county and state agencies.

Also, public employers are required to label containers and train employees about hazardous substances. (Private employers follow the training requirements of the federal Occupational Safety and Health Administration (OSHA)). Private employers are required to label containers according to OSHA *and* the New Jersey Right to Know law.

Hazardous Substance Fact Sheets, developed by DOH, provide information about the hazardous substances covered by the law and are available to employers, workers, and the public.

Who Is Covered by the Act?

Private employers covered by the law include lawn and garden services, pipelines, transportation services, communications, utilities, car dealers, gas stations, commercial testing labs, dry cleaners, automotive repair facilities, hospitals, schools, and manufacturers. Public employers covered include state, county, and local government agencies. (In addition, any employer who is required to report under SARA—Title III must file a Community Right to Know Survey with DEP.)

What Information Is on a Survey?

Both the Right to Know and Community Right to Know Surveys contain an inventory of hazardous substances used or stored at a facility site. It provides information such as the amount of a hazardous substance, the container it is stored in, and, for public employers, how many employees are exposed to it.

How Can the Act Help Protect Your Health?

Under the Right to Know Act you can get information about hazardous substances that may harm you or your family. Exposure to hazardous materials has been linked to problems such as cancer; heart, lung, and kidney diseases; nervous system disorders; birth defects; and reproductive problems. These may develop without prior symptoms, many years after exposure. Often symptoms are mistakenly associated with problems and illnesses caused by incidents other than exposure to hazardous substances.

Information about potential hazardous substance exposures should be recorded by your physician as an important part of your medical history. Should any medical problems arise in the future, this can help with proper diagnosis and treatment. Also, awareness about hazardous substances and potential exposures help with proper diagnosis and treatment. ***More importantly, awareness about hazardous substances and potential exposures can help you make vital employment and lifestyle decisions.***

Access to Information

Workers, officials, and the general public have access to a variety of information. For copies of the *Right to Know Survey*, contact your County Lead Agency or the State Department of Health. For copies of the *Community Right to Know Survey*, contact your County Lead Agency or the State Department of Environmental Protection. (See back cover for addresses and phone numbers.) Employees in public workplaces may ask their employer for a copy of the RTK Survey.

In addition, *Hazardous Substance Fact Sheets* are available from the DOH. These fact sheets contain health and safety information which can help you minimize everyday exposure to hazardous substances. The fact sheets discuss health problems that frequent exposure to chemicals may cause as well as information that is useful during an emergency. Public employees covered under the NJ RTK Act can also obtain these fact sheets from their employer.

Any requests for surveys or fact sheets to either state agency or your employer should be in writing and dated. Be sure to make copies of any requests for your own records.

If you are submitting a request for a Right to Know or a Community Right to Know Survey and/or a fact sheet to your County Lead Agency, DEP, or DOH, please include the name and address of the facility as well as your own name and address. The state has 30 days to respond to inquiries and all employee requests will be kept confidential.

Public employers must provide requested materials to employees as soon as possible or, at the latest, within five working days. Government agencies may charge a small copying fee for the materials.

Current data is also available from the Right to Know web page: www.state.nj.us/dep/enforcement/relprev/crtk.

Community Uses of Right to Know

If you have concerns about your community, the Right to Know Act is helpful. Right to Know information can help you and your community develop:

- Chemical profiles of individual facilities.
- Profiles of chemical use in your town.
- Appropriate emergency response plans.

Information from the Right to Know and Community Right to Know Surveys can help you define your concerns more clearly and guide talks with DEP, employers, neighbors, and elected officials about chemicals in your community. Public officials use information obtained under the Act to develop emergency response contingency plans for responding to a chemical accident.

Citizen questions about particular facilities is one way to help DEP check employer compliance with environmental laws. To report any abuse to the environment, call the Environmental Action Hotline (24 hours a day) at 1-877-WARN DEP (927-6337). For general information about the Department of Environmental Protection, call (609) 292-2943. If you wish, inquiries and complaints will be kept anonymous.

Your Workplace Rights

Public employees covered under the Right to Know Act have certain rights and access to information about substances with which they work. Some of these rights include:

- The right to have containers labeled with the identity of their chemical contents.
- The right to obtain a copy of the RTK Survey of hazardous substances in your workplace.
- The right to get Hazardous Substance Fact Sheets about chemicals you are exposed to or potentially exposed to from your employer.
- The right to annual education and training about chemicals at the workplace. This training must be given by the employer on paid time.
- The right to use the Right to Know Act without reprisals from your employer.
- The right to file a complaint against your employer for not complying with the Act. Your name will be kept confidential.
- The right to refuse to work with a substance if your employer has not given you the information you requested in writing within five (5) working days. *During that time, you should call DOH for more information BEFORE you refuse to work with the substance.*

If you have any questions about these rights, call the Department of Health at (609) 984-2202.

Discrimination Is Illegal

If you believe you have been fired or penalized for using your rights, contact the Department of Labor (DOL) within 30 days. They will investigate your complaint. DOL's number is (609) 292-7036.

Access to Medical Records

Under Federal and State laws, private and public workers can obtain copies of their complete medical and workplace exposure records. You are entitled to this information within 15 days of your written request.

New Jersey Department of Health and Senior Services

Information on Right to Know Surveys, education and training programs, Hazardous Substance Fact Sheets, complaints, labeling and enforcement of the RTK law in public workplaces:

New Jersey Department of Health
Right to Know Program
CN 368
Trenton, NJ 08625-0368
(609) 984-2202

New Jersey Department of Environmental Protection

Information about the Community Right to Know Program (which includes the Community Right to Know Survey and SARA, Title III):

New Jersey Department of Environmental Protection
Bureau of Hazardous Substances Information
CN 405
Trenton, NJ 08625-0405
(609) 292-6714

To report any abuse to the environment, call:
1-877-WARN DEP (927-6337)

New Jersey Department of Labor

Investigates worker complaints of discrimination under the RTK law:

New Jersey Department of Labor
Division of Workplace Standards
Station Plaza One
CN 386
Trenton, NJ 08625-0386
(609) 292-7036

MODULE 6

PUTTING IT ALL TOGETHER

Outline

- Module Objectives
- Safety Rules
- Hazmat vs. Weapons of Mass Destruction
- Handling a Suspect Anthrax Letter Incident
- Chem/Bio Threats Screening Questionnaire

MODULE 6 OBJECTIVES PUTTING IT ALL TOGETHER

The students will be able to:

1. list the four safety rules for first responders.
2. describe the attitude change that is necessary when emergency responders encounter hazardous material.

FOUR SAFETY RULES

1. Protect Yourself—Use Safe Approach
2. Identify Hazards
3. Secure the Scene
4. Obtain Further Aid and Assistance

The ability to recognize and identify hazardous materials at the scene of an emergency can mean the difference between control and catastrophe. Remember your role as an Awareness level responder. The goals you need to accomplish may seem simple, but their impact on the successful outcome of an incident are significant. These goals are recognition, identification and notification. An Awareness level responder need only a few resources and no special PPE to accomplish these goals.

Recognition entails knowing that you are now involved in a hazardous materials incident. Once it has been established that it is a hazardous material incident, you should attempt to identify the material (remember the six clues from Module 3). **YOU MUST DO THIS IN A SAFE MANNER. IF YOU CAN NOT DO THIS SAFELY, DO NOT DO IT.**

At all times, you must protect yourself and others by taking control of the scene, denying entry, and notifying the proper authorities for the appropriate level of response (Operations and/or Technician trained personnel).

When in doubt, ask yourself the following questions:

Am I aware of the hazards?

Am I properly protected?

Am I properly trained to carry out my actions?

APPENDIX 1

IMPORTANT TELEPHONE NUMBERS

EMERGENCY RESPONSE

NJ DEP HOTLINE (EMERGENCY ACTION LINE)	1-877-WARNDEP
CHEMTREC	800-424-9300
ASSOCIATION OF AMERICAN RAILROADS	
BUREAU OF EXPLOSIVES	202-639-2222
EPA REGION II EMERGENCY RESPONSE	908-321-6657
NATIONAL RESPONSE CENTER (U.S.C.G.)	800-424-8802
NEW JERSEY POISON CONTROL CENTER	800-962-1253
NATIONAL POISON CONTROL HOTLINE	800-764-7661

STATE AGENCIES

NEW JERSEY STATE POLICE:

HAZMAT RESPONSE UNIT	732-721-4040
HAZ MAT TRANSPORTATION	609-882-2000 x. 2586

DEPARTMENT OF ENVIRONMENTAL PROTECTION:

COMMUNITY RIGHT TO KNOW	609-292-6714
TOXIC CATASTROPHE PREVENTION ACT	609-633-7289
COUNTY ENVIRONMENTAL HEALTH ACT	609-292-6028
DISCHARGE PREVENTION CONTAINMENT AND	
COUNTERMEASURE	609-633-0610
RESPONSIBLE PARTY SITE REMEDIATION	609-633-2168
BUREAU OF HAZARDOUS WASTE	
ENFORCEMENT	609-984-5855

DEPARTMENT OF HEALTH:

WORKER RIGHT TO KNOW	609-984-2202
PUBLIC EMPLOYEES OSH SERVICE	609-984-1863

DEPARTMENT OF LABOR:

WORKER RIGHT TO KNOW 609-292-7036
 DEPARTMENT OF PERSONNEL—HUMAN RESOURCE
 DEVELOPMENT INSTITUTE (HRDI) 609-292-7115

FEDERAL AGENCIES

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

OSHA..... 202-219-7162
 OSHA REGION II OFFICE 212-337-2378
 NEW JERSEY AREA OSHA OFFICES:
 HASBROUCK HEIGHTS..... 201-288-1700
 DOVER..... 201-263-1003
 AVENEL 908-750-3270
 CAMDEN 609-757-5181
 NIOSH HOTLINE 800-356-4674
 NIOSH HEADQUARTERS..... 404-639-3771
 NIOSH REGION II OFFICE 212-264-4600

ENVIRONMENTAL PROTECTION AGENCY

EPA HOTLINE..... 202-382-3000
 EPA SUPERFUND HOTLINE 800-424-9346
 REGION II SARA TITLE III ASSISTANCE 908-906-6900

DEPARTMENT OF TRANSPORTATION

U.S. COAST GUARD THIRD DISTRICT 212-668-7152
 ATLANTIC STRIKE TEAMDAYTIME..... 609-724-0008
 NIGHTTIME (ANSWERING MACHINE)..... 609-562-6730
 DOT HOTLINE (CFR TITLE 49)..... 202-366-4488
 DOT/FEMA HAZ MAT TRANSPORTATION HOTLINE 800-752-6367
 DOT/REGIONAL EMERGENCY TRANSPORTATION . 617-223-8480

OTHER FEDERAL AGENCIES

DEPARTMENT OF ENERGY..... 800-428-2525
TOXIC SUBSTANCES CONTROL ACT HOTLINE 202-554-1404
U.S. ARMY CORPS OF ENGINEERS..... 202-272-0001
U.S. AGENCY FOR TOXIC SUBSTANCES AND
DISEASE REGISTRY HOTLINE 404-639-0615
CENTERS FOR DISEASE CONTROL..... 404-639-3291
FBI NEWARK..... 973-792-3000

OTHER ASSOCIATIONS

AMERICAN CONFERENCE OF GOVERNMENTAL
INDUSTRIAL HYGIENISTS (ACGIH)..... 513-661-7881
AMERICAN INDUSTRIAL HYGIENE ASSOCIATION.. 216-873-2442
AMERICAN INSTITUTE OF CHEMICAL
ENGINEERS 201-763-2877
AMERICAN SOCIETY OF SAFETY ENGINEERS 312-692-4121
AMERICAN TRUCKING ASSOCIATION..... 800-ATA-LINE
CHEMICAL INDUSTRY COUNCIL OF NJ 609-392-4214
CHEMICAL MANUFACTURERS ASSOCIATION
(CMA)..... 202-887-1100
CMA CHEMICAL REFERRAL CENTER
(NON-EMERGENCY CHEMICAL
INFORMATION)..... 800-CMA-8200
NATIONAL SAFETY COUNCIL (NSC) 312-527-4800
NATIONAL FIRE PROTECTION ASSOCIATION..... 617-770-3000
TEXAS TECH UNIVERSITY PESTICIDE HOTLINE..... 800-858-7378

APPENDIX 2

GLOSSARY

-A-

29 CFR 1910.120—Hazardous Waste Operations and Emergency Response (OSHA).

A-310—(Public Law 1984, Ch. 210) Inter-Agency Notification

ABSORBANT MATERIAL—Loose or bagged material like commercial bagged clay, kitty litter, Zorbal, or “pigs” used to soak up liquid hazardous materials.

ACGIH—American Conference of Governmental Industrial Hygienists. Recommends upper limits (TLVs) for exposure to workplace chemicals.

AIR REACTIVE MATERIALS—Materials that will react with atmospheric moisture and rapidly decompose.

ANSI—American National Standards Institute

APR—Air Purifying Respirator

ASPHYXIAN—A substance that can cause unconsciousness or death by lowering the concentration of oxygen in the air or by out competing oxygen metabolically in the body.

AST—Above Ground Storage Tank

-B-

BER—Bureau of **E**mergency **R**esponse (of DEP)

BLEVE—Boiling **L**iquid **E**xpanding **V**apor **E**xplosion

BPU—Board of **P**ublic **U**tilities (now the BRC)

BRC—Board of **R**egulatory **C**ommissioners (formerly the BPU)

BULK PACKAGING—Packaging other than a vessel or barge in which materials are loaded with no intermediate form of containment. It includes transport vehicles and freight containers which have an internal volume greater than 450 Liters (118.9 gallons) for liquids, 400 Kilograms (881.8 pounds) for solids, or a water capacity greater than 453.6 Kilograms (1000 pounds) for gas.

BUNG—1) The cap or plug used to seal the small opening in the top of a drum or barrel. 2) The small opening in the top of a drum or barrel.

-C-

CAA—Clean **A**ir **A**ct

CARCINOGEN—A substance that causes cancer.

CARGO TANK—Bulk packaging which is a tank intended for carrying liquids or gases, is attached to a motor vehicle or not detached for unloading, and is not fabricated under other specifications (as for cylinders, portable tanks, tank cars, etc.).

CAS—Chemical **A**bstract **S**ervice

CEHA—County **E**nvironmental **H**ealth **A**ct

CEPP—Chemical **E**mergency **P**reparedness **P**rogram

CERCLA—Comprehensive Environmental Response, Compensation, and Liability Act (the Superfund Law)

CFR—Code of Federal Regulations

CGI—Combustible Gas Indicator

CHEMTREC—Chemical Transportation Emergency Center

COCARCINOGEN—(or promoter)—Not a carcinogen by itself, but promotes the effects of a carcinogen.

COMBUSTIBLE SUBSTANCE—A solid, liquid, or gas that will burn.

CONFINED SPACE—A space which, by design, has limited openings for entry and exit, unfavorable natural ventilation which could contain or produce dangerous air contaminants, could contain a hazardous atmosphere and which is not intended for continuous employee occupancy. A confined space includes (but is not limited to) a tank, vessel, pit, ventilation duct work, vat, boiler, sewer, or underground utility vault. (NJAC 12:100-9.2).

CONSUMER COMMODITY—A material that is packaged and distributed in a form intended for sale through retail agencies for consumption by individuals for purposes of personal care or household use.

CONTAINMENT—The act of preventing or confining the spread, or further spread, of a hazardous material.

CRYOGENIC—Pertaining to materials at extreme low temperatures (below -90 degrees C or -130 degrees F).

CWA—Clean Water Act

CYLINDER—A pressure vessel designed for pressures above 40 psia and having a circular cross section.

-D-

DECOMPOSITION—The basic breakdown of a substance into different substances. Energy will be released by this reaction; in the case of highly reactive materials, the release may be sudden i.e. explosive.

DECONTAMINATION—The process of removing hazardous substances to prevent adverse health, safety, or environmental effects.

DEGRADATION—(applied to protective clothing) Chemical decomposition brought about by exposure to heat, sunlight, solvents, or oxidation.

DEP—Department Of Environmental Protection

DOE—Department Of Energy

DOH—Department Of Health

DOL—Department Of Labor

DOP/HRDI—Department Of Personnel/Human Resource Development Institute

DOT—Department Of Transportation

DOWNWIND—The area directly in the path of the wind from the incident site.

DPW—Department of Public Works

-E-

ECRA—New Jersey Environmental Cleanup Responsibility Act

EFFLUENT—Waste material (such as smoke, liquid industrial refuse, or sewage) discharge into the environment. It generally refers to water pollution.

EIS—Emergency Information System

EMS—Emergency Medical Service

EOC—Emergency Operations Center

EPA—United States Environmental Protection Agency

ERG—USDOT Emergency Response Guidebook

ERP—Emergency Response Plan

EXPLOSIVE LIMITS—The range of concentration of a gas or vapor (measured in percent by volume in air) that can explode upon ignition. The highest and lowest concentration are called, respectively, the Upper Explosive Limit (**UEL**) and the Lower Explosive Limit (**LEL**). At concentrations lower than the LEL, there is not enough product in the air to explode; the mixture is “too lean.” At concentrations above the UEL, there is not enough oxygen to sustain an explosion; the mixture is “too rich.”

EXPLOSIVE RANGE—The number (as a percentage) that results from subtracting the LEL of a substance from its UEL. The range of percentage of a substance in air that will support explosion or combustion.

-F-

FEMA—Federal Emergency Management Agency

FLAMMABLE SUBSTANCE—A solid, liquid, vapor, or gas that will ignite easily and burn rapidly.

FLASH POINT (FP)—The lowest temperature at which the vapor given off by a liquid within a test vessel forms an ignitable mixture with air. This is *only* a flash, not a sustained fire.

FR—Federal Register

FRA—First Responder Awareness

FREEZING POINT—The freezing point or melting point of a substance is the temperature at which its crystals are at equilibrium with its liquid state. The terms melting point and freezing point are used interchangeably, depending on whether that temperature is approached by heating or cooling the substance.

FREIGHT CONTAINER—A reusable container having a volume of 64 cubic feet or more. It is designed and constructed to permit lifting with its contents intact.

FRO—First Responder Operational

FUMES—The particulate, smoke-like emanation from the surface of heated metals. Also, the vapor from concentrated acids, evaporating solvents, or as a result of combustion or other decomposition reaction.

-H-

HAZARDOUS MATERIAL—Any substance that, when released from its container, is a potential or actual threat to the safety of life or property when it touches or impinges upon them.

HAZARDOUS MATERIAL INCIDENT—The unintentional or uncontrolled release of a hazardous material.

HAZARDOUS WASTE—Any substance that may pose an unreasonable risk to health, safety, or property when transported in commerce for the purpose of treatment, storage, or disposal as waste.

HAZMAT—Hazardous Materials

HAZWOPER—Hazardous Waste Operations and Emergency Operations and Emergency Response

HMT—Hazmat Technician

HSFS—Hazardous Substance Fact Sheet (NJDOH publication)

-I-

IC—Incident Commander

ICS—Incident Command System

IDLH—Immediately Dangerous to Life and Health

IGNITION TEMPERATURE—(Ign. Temp.)—The minimum temperature required to initiate sustained self-combustion of a material or compound.

-L-

LEL—Lower Explosive Limit

LEPC—Local Emergency Planning Committee

-M-

MISCIBILITY—The ability of a liquid or gas to dissolve completely and evenly in another liquid or gas at any concentration.

MSDS—Material Safety Data Sheet

MSHA—Mine Safety and Health Administration

MUTAGEN—A substance that causes mutations. A mutation is a change in the genetic material in a body cell. Mutations can lead to birth defects, miscarriages, or cancer.

-N-

N.O.S.—Not Otherwise Specified

NFPA—National Fire Protection Association

NIEHS—National Institute of Environmental Health Sciences

NIOSH—National Institute for Occupational Safety and Health

NJAC—New Jersey Administrative Code

NJPDES—New Jersey Pollutant Discharge Elimination System

NJRTK—New Jersey Right To Know law (also called; Worker and Community Right to Know)

NJSA—New Jersey Statutes Annotated

NJSP—New Jersey State Police

NON-BULK PACKAGING—(see bulk packaging)—Packaging smaller than bulk packaging.

NON-LIQUIFIED GAS—Under pressure, is entirely in the gaseous state at 21.1°C (70°F).

-O-

OEM—Office of Emergency Management

ORM—Other Regulated Material

OSHA—Occupational Safety and Health Administration

OSIC—On Scene Incident Commander

OVERPACK—An enclosure used by a consignor to provide protection or convenience in handling a package or to consolidate two or more packages. It does not include a freight container.

-P-

PEL—Permissible Exposure Limit

PENETRATION—1) Refers to chemicals physically passing through protective clothing by way of a tear, cut, or improperly sealed closure. 2) Introducing contaminants into the body by way of exposed cuts or injection by sharp materials (broken glass, metal shards, etc.).

PEOSHA—Public Employee Occupational Safety and Health Act

PERMEATION—Refers to chemicals passing through protective clothing by absorption. **All** protective clothing is permeable to some extent.

PILE—Any non-containerized accumulation of solid, nonflowing hazardous wastes that is used for treatment or storage.

PLUME—A vapor cloud formation which has shape and buoyancy.

POINT SOURCE—Any discernible, confined, and discrete conveyance (pipe, ditch, channel, conduit, well, etc.) from which pollutants are, or may be, discharged.

POISON —Any substance that is harmful to living tissue when applied in relatively small doses. (See toxin).

PORTABLE TANK—A bulk packaging designed to be loaded onto or temporarily attached to a transport vehicle or ship.

PPE—Personal Protective Equipment

PULMONARY EDEMA—The condition of having fluid in the lungs. The condition may be fatal.

-R-

RCRA—Resource Conservation and Recovery Act

REACTIVE SUBSTANCE—A solid, liquid, or gas that can cause an explosion under certain conditions or on contact with other specific substances.

RESIDUE—The hazardous material that remains in a packaging after its contents have been unloaded to the maximum extent practicable and before the packaging is refilled or cleaned and purged to remove any hazardous vapors.

RTK—Right To Know; May refer to State or Federal law.

-S-

SARA—Superfund Amendments and Reauthorization Act of 1986

SCBA—Self-Contained Breathing Apparatus

SHIPPING PAPER—A shipping order, bill of lading, manifest or other document containing the information required by 172.202, 172.203 and 172.204.

SOLUBILITY—The ability or tendency of one substance to dissolve evenly in another.

SOLVENT—A substance capable of dissolving another substance (the solute) to form a uniformly dispersed mixture (the solution). Water, referred to as the “universal solvent,” is a strongly polar solvent.

SOP—Standard Operating Procedure

SPONTANEOUSLY COMBUSTIBLE—The ignition of a substance from the rapid oxidation of its own constituents.

STCC—Standard Transportation Commodity Code

STEL—Short Term Exposure Limit

STLC—Short Term Lethal Concentration

SUMP—Lowest point of a tank. The emergency valve or outlet valve is usually attached to a tank's sump.

-T-

TCPA—Toxic Catastrophe Prevention Act

TERATOGEN—A substance that causes birth defects by damaging a fetus.

TLV—Threshold Limit Value—recommended air concentration in which most persons can work for an 8-hour work day without ill effects. Set by the ACGIH.

TLV-C—Threshold Limit Value-Ceiling—Exposure level to employees that shall not be exceeded during any part of the work day.

TLV-STEL—See STEL

TOXICITY—The state or degree of being poisonous; a harmful effect on biological mechanisms.

TOXIN—Any material harmful, destructive, or poisonous to the body (adj. Toxic). (See Poison).

TSCA—Toxic Substances Control Act

TWA—Time Weighted Average—The calculated average concentration for an 8-hour work day, 10-hour work day or 40-hour work week to which workers may be exposed over their working career without ill effects. Set by the ACGIH.

-U-

UMDNJ—University of **M**edicine and **D**entistry of **N**ew **J**ersey

UNIT LOAD DEVICE—Any type of freight container with a net or aircraft pallet with a net over an igloo.

UNSTABLE MATERIALS—Those which, in the pure state, will vigorously polymerize, decompose, condense, or become self reactive, and undergo other violent chemical changes.

UPWIND—The direction from which the wind is coming.

UST—Underground **S**torage **T**ank

-V-

VAPOR—An air dispersion of molecules of a substance that is liquid or solid in its normal state (room temperature).

VOC—Volatile **O**rganic **C**ompound

VOLATILITY—The tendency of a solid or liquid to pass into the gaseous state at a given temperature.

-W-

WATER REACTIVE MATERIALS—Materials which will violently decompose and/or burn vigorously when they come in contact with water.

WATER SOLUBILITY—The degree to which a material, or its vapors, are soluble in water. Materials that are completely soluble in water are said to be **miscible**.